

Open Access Policy for the Academic Institutions of Bangladesh: Designing a Framework

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Open Access Policy for the Academic Institutions of Bangladesh: Designing a Framework submitted by me for the award of the Degree of Doctor of Philosophy in Arts at Jadavpur University is based upon my work carried under the supervision of Prof. Udayan Bhattacharya, Professor, Department of Library and Information Science, Jadavpur University.

And that neither this thesis nor any part of it has been submitted before for any degree or diploma anywhere / elsewhere.

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DECLARATION

I hereby declare that my own research was used to create the entire doctoral thesis, "Open Access Policy for the Academic Institutions of Bangladesh: Designing a Framework," which I submitted to the Faculty of Arts, Department of Library and Information Science, Jadavpur University, Kolkata, India. No part of this thesis has ever been previously presented for an academic degree, diploma, or other similar title.

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DEDICATION

This thesis is dedicated to my parents, Md. Kalamullah and Kustury Begum; my mentor, Dr. Mirza Rezaul Islam; my wife, Soheli Akhter Ivy and my daughters-Muniba, Manha, Marium

For their endless love, support and encouragement

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PREFACE

Every library adheres to a set of guidelines to expand its collection for patrons. Certain problems might arise when a library intends to expand its collections. The majority of the time, libraries face financial crises. The annual budget is hardly ever enough to cover the demands, and on occasion when materials are purchased, it is clear that consumers' preferences are not reflected in the products. These kinds of issues, however, do not occur through the Open Access process. Additionally, open access can primarily aid in collection development. Open Access is what the world needs right now.

The main principle of open access is the basis for its main benefit, which is that reading materials are freely available for anybody to access and use. The advantages of not having to pay for a subscription to a certain journal, article, or other reading material are clear to readers and libraries. Professionals in Bangladesh are at present giving the idea of open access serious consideration to further the growth of their current collection.

By accumulating a vast, free collection of information resources through the open access facility and highlighting the benefits difference between open access users and non-users, libraries and librarians have much to gain. The present study's focus and coverage are restricted to the following: how open access will be promoted in Bangladeshi libraries; the role of open access in the development of information resources and collections in the digital age. Since the research will concentrate on the development of information resources and collections, it will provide considerable insight into the policies governing collection development, open access, library services, library budgets, and library professional development.

The growth of their collections has prompted certain academic institutions in Bangladesh to expand the Open Access repository. Academic libraries with open access repositories reflect the results of educational research conducted by students, professors, and researchers. Its main function is to preserve, administer, and allow long-term access to its collection. A greater awareness of the research outputs housed in the repository would aid in the dissemination of information to a larger research audience, potentially boosting the effect of education and research as well as the rate of citations in Bangladesh in the future. However, there are currently no OA policies in place at academic institutions.

To make open access materials more widely used in Bangladesh, neither the government nor academic institutions have provided any suitable implementation recommendations. There is no specific initiative from the society, although professional organizations like OAB, LAB, and BALID are leading campaigns to promote OA resources and benefit from doing so by holding workshops and training sessions. To effectively employ OA resources, academic institutions must first develop an open access policy.

Because several standards and recommendations have been put forward during the study of the problems, the study aims to investigate the various facets of Open Access (OA) resources concerning their contribution to collection development and future scopes of open access resources to introduce policies and strategies to encourage the promotion of open access in Bangladesh; to design a policy framework; to conduct surveys of the scholarly community, librarians, students, funders, publishers, and stakeholders to determine the current situation and their suggestions; to introduce an OA resource. The study suggests defining the framework of an open access policy for academic institutions, outlining how this policy would operate and how it will benefit the scholarly community, as well as providing a model for scholarly publication for Bangladeshi academic institutions.

M. Monirul Islam

Date:

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LIST OF ABBREVIATIONS AND ACRONYMS

ACR	—	Annual Confidential Record/Annual Cumulative Record
ACS	—	American Chemical Society
ADP	—	Annual Development Programme
AGORA	—	Access to Global Online Research in Agriculture
AIC	—	Agricultural Information Center
AICTE	—	All India Council for Technical Education
AIF	—	Academic Innovation Fund
ALA	—	American Library Association
APC	—	Article Processing Charges
ATHENS	—	Advanced Thematic Navigation System
BanglaJOL	—	Bangladesh Journals Online
B.Ed	—	Bachelor of Education
BALID	—	Bangladesh Association of Librarians, Information Scientists and Documentalists
BANBEIS	—	Bureau of Educational Information and Statistics Bangladesh
BANSDOC	—	Bangladesh National Scientific and Technical Documentation Centre
BAS	—	Bangladesh Academy of Science
BASLIBNET	—	Bangladesh Academic and Special Library Network
BAU	—	Bangladesh Agricultural University
BAUL	—	Bangladesh Agricultural University Library
BBS	—	Bangladesh Bureau of Statistics
BdREN	—	Bangladesh Research and Education Network
BDSIC	—	Bangladesh Development Support Information and Communication Network
BERNET	—	Bangladesh Education and Research Network
BRS	—	Bibliographic Research Service
BRAC U	—	BRAC University
BRAC UL	—	BRAC University Library
BUET	—	Bangladesh University of Engineering and Technology.

BUETL	—	Bangladesh University of Engineering and Technology Library
CAS	—	Current Awareness Services
CC	—	Creative Commons
CD-ROM	—	Compact Disc-Read Only Memory
CRKN	—	Canadian Research Knowledge Network
CMS	—	Content Management System
CU	—	Chittagong University
CUL	—	Chittagong University Library
DIU	—	Daffodil International University
DIUL	—	Daffodil International University Library
DDC	—	Dewey Decimal Classification
DOAJ	—	Directory of Open Access Journals
DU	—	University of Dhaka
DUIR	—	Dhaka University Institutional Repository
DUL	—	Dhaka University Library
E-Book	—	Electronic Book
E-Journals	—	Electronic Journal
ETDs	—	Electronic Theses and Dissertations
EU	—	Eastern University
EU	—	European Union
HINARI	—	Health Inter-Network Access to Research Initiative
ICDDR'B	—	International Centre for Diarrheal Disease Research, Bangladesh
ICT	—	Information and Communication Technology
IL	—	Information Literacy
IFLA	—	International Federation of Library Associations and Institutions
IR	—	Institutional Repository
ISBD	—	International Standard Bibliographic Description
ISLM	—	Information Science and Library Management
IT	—	Information Technology
IUBAT	—	International University of Business Agriculture and Technology

IUBATL	—	International University of Business Agriculture and Technology Library
IUB	—	Independent University of Bangladesh
IUBL	—	Independent University of Bangladesh Library
JU—	—	Jahangirnagar University
JUL	—	Jahangirnagar University Library
KM	—	Knowledge Management
KU	—	University of Kansas
KUET	—	Khulna University of Engineering and Technology
LAB	—	Library Association of Bangladesh
LIS	—	Library and Information Science
M.A	—	Master of Arts
M.Ed	—	Master of Education
M.Phil	—	Master of Philosophy
MIT	—	Massachusetts Institute of Technology
NKC	—	National Knowledge Commission
NSU	—	North South University (NSU)
OA	—	Open Access
OAB	—	Open Access Bangladesh
OAP	—	Open Access Policy
OA Publishing	—	Open Access Publishing
OAR	—	Open Access Resources
OER	—	Open Educational Resources
OAI-PMH	—	Open Access Initiatives – Protocol for Metadata Harvesting
OARE	—	Online Access to Research in the Environment
OPAC	—	Online Public Access Catalogue
OpenDOAR	—	Directory of Open Access Repositories
OSI	—	Open Society Institute
OASPA	—	Open Access Scholarly Publishing Association
PDF	—	Portable Document Format
PfD	—	Publishers for Development

Ph.D	—	Doctor of Philosophy
PLOS	—	Public Library of Science
ROARMAP	—	Open Access Repositories Mandatory Archiving Policies
RU	—	Rajshahi University
RUL	—	Rajshahi University Library
SDI	—	Selective Dissemination of Information
SPARC	—	Scholarly Publishing and Academic Resources Coalition
SMS	—	Short Message Service
SPSS	—	Statistical Package for the Social Sciences
SSRN	—	Social Science Research Network
SWOT	—	Strengths, Weaknesses, Opportunities and Threats
UGC	—	University Grants Commission
URL	—	Uniform Resource Locator
US	—	United States
UN	—	United Nations
UNESCO	—	United Nations Educational, Scientific and Cultural Organization
VC	—	Vice Chancellor
WB	—	World Bank
Wi Fi	—	Wireless Local Area Network
WoS	—	Web of Science
WWW	—	World Wide Web

ABSTRACT

The purpose of the study is to design a policy for open access resources in Bangladeshi academic institutions. This study focuses on the present state of open access (OA) resources at several Bangladeshi academic institutions. It has also made an effort to investigate how the academic community's approach, use, and are aware of open access (OA) resources.

The objectives of the study were to find out the different aspects of Open Access (OA) resources regarding contribution to collection development and future scopes of open access resources to introduce policies and strategies to encourage the promotion of open access in Bangladesh; to design a policy framework; to survey the scholarly community, librarians, students, funders, publishers and stakeholders to assess the existing status and their suggestions; to introduce an OA resources policy in academic institutions in Bangladesh; to find out the barriers and limitations of policy implementation; and to put forward recommendations and concluding remarks.

The current investigation makes use of a questionnaire, direct interviews, field visits, various documentation methods, and direct observation to sample academic institutions. The questionnaire technique has certain limitations when it comes to gathering data, therefore we used interviews and our observation methods to get the necessary data as a supplement to the questionnaire methods and to make the data easier to comprehend. Since it would be impractical to acquire a significant amount of data from every library for their study, a stratified random sampling approach was used to choose the sample. As a result, we picked 12 academic institutions—six public and six private—according to their founding year. The four sets of surveys were individually delivered to the academic community, students, librarians, publishers, and other stakeholders.

The findings of the study have been presented in nine chapters, with detailed explanations. The researcher believes that more academics and stakeholders should have participated, but that was not feasible owing to several limitations. Academic institutions that have recently been founded were excluded from the research. The SWOT (a study conducted by an organization to determine its internal strengths and weaknesses as well as its external opportunities and threats) analysis of the proposed policy has not been taken into account. Due to budget limitations, the technological components of executing the policy have also been overlooked.

Finally, this study clarifies the structure of an open access policy for academic institutions, how it might operate, and how it would help the scholarly community. The policy should be implemented with the proper rules, enabling academic institutions to improve their current circumstances and prepare for any future challenges. All academic librarians, the scholarly community, funders, publishers, and other stakeholders will find useful guidance to build and implement the OA Policy in this proposed policy, in addition to the guidelines for policymakers at academic institutions. Researchers will discover new possibilities for exploration.

Chapter 1

Introduction

1.1 Introduction of the Study

People are becoming more accustomed to using electronic documents thanks to the Internet and other electronic means. Using smartphones, tablets, computers, and other devices, they can easily search for and locate what documents they need online for free. Users (students and researchers) can readily download and utilize it for their research, education, and other needs. However, they occasionally run into issues while using certain resources. The majority of the time, reputable publishers do not make their journal articles available without subscriptions or payment. For new researchers and students, this is a major issue since, in certain cases, it is now relatively impossible to subscribe or pay the fee, preventing them from immediately accessing those important materials. Researchers are always looking for ways to get over these obstacles and readily and freely obtain the materials. The phrase "open access" originated from this idea. Although Open Access (OA) is very popular in the Western world, the concept has only started getting familiar very recently in Bangladesh.

Each academic establishment has a library with a unique collection. Presently, due to the information explosion, huge numbers of publications are being published every day, and it is very difficult for an institution's administration and library professionals to gather every kind of publication with their limited budget. In this case, every academic institution seeks to make sure that open access resources are used to their fullest potential while also establishing OA repositories. However, introducing OA resources into the library is proving to be very difficult for the authority.

A library is an ever-growing structure of any institution where the librarian plays a key role in developing the collection. But usually, because of insufficient budget allocation, librarians always fight to build up enough information resources and collections for both regular and future customers. Open access may be a huge help for librarians in coping with the flow of the most recent and updated collections to stay up with the rapidly changing information trends. As a result, to enhance their information resources and collection development operations with the aid of open access resources, library professionals in Bangladesh have attempted to adapt to the changing information needs of the country. Public, academic, special, and other types of librarians interested in collection building are becoming more and more active in the open access movement. It is now more crucial than ever to play the roles of selector, assessor, and mediator of high-quality information.

Librarians, who are taking on OA for collection development, have been facing three realities:

1. Users are overwhelmed by the variety of options and informational formats.
2. Libraries are having trouble keeping up with demand owing to budget deficits. (Burpee and Fernandez, 2013)
3. Community involvement is increasing, citizen science is becoming popular, and governments and funding organizations are requiring the adoption of public access rules to research findings.

According to Suber (2013), open access (OA) refers to publications that are digital, online, cost-free, and exempt from the majority of copyright and license restrictions. Since the beginning, librarians have been ardent supporters of open access. "Librarians move for OA requirements. They communicate with their legislators through writing. They speak on the phone and go on visits. They coordinate and network. They interact with one another, their clients, and the general public through communication. They create, manage, and update repositories. They document their observations, case studies, polls, and best practices in writing. They concentrate. They generally comprehend the donors and policymakers." (Poynder, 2011).

Open Access is a mechanism for remote document access that enables everyone to meet their needs without restrictions. For today's academic institutions, the term "Open Access" is quite helpful. Since all of the materials are available to everyone, anybody may visit the website and get the knowledge they need without having to be a student at the university. In Bangladesh, the academic institutions that pioneered the Open Access Institutional Repository (IR) only make available the materials that their teachers, researchers, and students have published. However, neither public nor private academic institutions have an open access policy. The paper aims to demonstrate how open access materials are seen, how they contribute, and their potential in certain Bangladeshi academic institutions. Finally, the author develops a policy for Bangladesh's academic institutions. To do this, six public and six private academic institutions in Bangladesh that are credited with being pioneers in the use of open access materials in Bangladeshi academic institutions have been used as samples.

1.2 Necessity and significance of the study

Academic institutions are essential to the growth and prosperity of a country. The collection development policy of such academic institutions is of crucial concern when it comes to general academic competency and the caliber of research conducted at those institutions. Resources that are open access (OA) are becoming more and more valued and well-liked in research and academia all around the world, although the pace of the OA movement and its advancement are both extremely slow in Bangladesh (Uddin et al., 2014). Numerous articles have been written about open access (OA), open access repository (IR), the OA movement, open access journals, and other OA-related topics, but there has been no research on the degree of knowledge of open access resources among the students and academic community and how it affects the growth of collections at academic institutions in Bangladesh. The research on open access resources, their value, potential, and OA policy model for academic institutions is being conducted for the first time in this effort. The current study's scope and coverage are restricted to gaining an understanding of how academics and students in Bangladesh's academic institutions feel about using open access materials. The motivating variables that lead instructors and students to choose open access (OA) materials and to publish their works on OA platforms are also examined in this research. The study will also concentrate on the function of open access materials in collection development and how they affect collection development in Bangladeshi academic institutions. This study concludes by offering a model for an "Open Access Policy (OAP) for an Academic Institution" and how libraries might promote OA publishing. Given the existing need for such a study, the researcher was motivated to take on this research task. The study on this topic will surely be useful for future open access research in Bangladesh.

1.3 Scope of the Study

Academic institutions have long understood the need and benefits of open access materials. However, to create a policy on open access resources in Bangladeshi academic institutions, it is necessary to study how open access resources are used and perceived in selected academic institutions. Priority should be placed on ensuring that educational quality is on par with that of the developed countries when creating an open access policy for all sorts of academic institutions. Sadly, Bangladesh has not conducted any comparable survey study on creating an open access policy for academic institutions. Out of the many topics that may be researched in connection to developing an open access policy for resources, the current study concentrates on a review of the following issues, which are the most pertinent to the study. Few academic

institutions throughout the globe employ open-access policies, although open access is the most well-known and accepted word opposing paywalls. Many scientific groups are denied the advantages of open access because there are no regulations in place to support it. The current effort has been made for that reason and will hopefully significantly advance this field.

Of all the topics that might be looked into in connection to open access resources, the study focuses on a review of the following issues:

- ✓ Usage and perception of Open Access Resources among the scholarly community
- ✓ Collection development through Open Access Resources in academic institutions in Bangladesh
- ✓ Strategies for promoting Open Access Resources in academic institutions of Bangladesh

Open access research has a lot of potential in Bangladesh. To begin with, no one in Bangladesh has carried out this sort of study. Second, the subject is essential for creating a plan for publishers, libraries, and the academic community to use open access materials.

1.4 The Objective of the Study

The study's primary objective is to concentrate on the many facets of open access (OA) resources in terms of their contribution to the growth of certain academic institution libraries in Bangladesh and their potential future applications. This research's more specific objectives are:

- To investigate the overall scenario of Open Access resources in selected academic institutions of Bangladesh.
- The level of understanding of Open Access Resources (OAR) amongst students and the scholarly community in academic institutions of Bangladesh.
- To determine the scholarly value of Open access resources.
- To introduce policies and strategies to encourage the promotion of open access in Bangladesh
- To identify the future scope of open access resources.
- To focus on open access resources and their impact on the collection development of libraries.

- To design a policy framework for Open Access resources (OAR) in academic institutions of Bangladesh.
- To suggest a solution for promoting OA resources in academic institutions.

1.5 Research Questions

- A1.** What is the level of understanding of open access resources among the faculty members, students, librarians, and policymakers?
- A2.** What are their contributions to the collection development of their library?
- A3.** What are the problems they are facing in using open access resources in their academic institution?
- B1.** What is the impact of open access resources in collection development?
- B2.** What is the future scope of open access resources in academic institutions in Bangladesh?
- B3.** What are the strategies to be applied for encouraging the promotion of open access resources?
- C1.** What should be the OA policies in academic institutions in Bangladesh?
- C2.** What should be the OA publishing policies in academic institutions in Bangladesh?
- C3.** How does the location of deposit support or demand Open Access by including support policies and backdoor requirements?

1.6 Methodology of the Study

The most intriguing and promising paradigm for meeting the needs of library users in the era of Information and Communication Technology (ICT) is open access (OA), in all of its varied manifestations. Therefore, it is essential to gather reliable information about the current situation of OA resource consumption in academic institutions in the era of ICT. A thorough literature search is done by the author of this study using academic journals from various platforms to gain better knowledge and clear thoughts about the perception, contribution, and future horizons of open access materials in academic institutions in Bangladesh. At the end of the dissertation, an extensive bibliography of all the relevant literature (including URLs and printed materials) is provided. General phrase search and Boolean search techniques have been applied.

In this study, the following methodology and techniques have been adopted:

(a) Questionnaire Method:

To gather opinions on how open access resources are currently perceived, what they contribute, and what their potential future uses might be, the researcher used the questionnaire approach and developed a questionnaire that was distributed to library professionals, the scholarly community, students at the Masters and MPhil levels, policymakers, and stakeholders.

b) Personal Interview Method:

To facilitate conversational flow and enable interviewers to elicit comments from participants, structured and open-ended interview questions were employed. The questions included a variety of scholarly communication topics, such as institutional services and initiatives, changing organizational structures, cooperation both inside and outside of institutions, education and training, and future institutional visioning. Candidates for the interviews were chosen based on their level of OA advocacy at their universities as well as their leadership or commitment to academic research. University librarians from the public and private sectors, as well as those with direct responsibility for collection development initiatives, participated in the interview session.

c) Historical Method:

A historical approach was applied to examine global and Bangladeshi open access activities.

d) Observation Method:

The researcher conducted an in-depth analysis of a selected number of Bangladeshi academic institutions. He visited the 12 institutions and personally observed how librarians, faculty members, and students used open access (OA) resources.

After all, the entire study is carried out by following the procedures of the research model:

- Developing and testing questionnaires.
- Gathering data from the sample.
- Conducting interviews with responders.
- Data collection and analysis.

Four separate questionnaires were developed. One was for the scholarly community, one was for MPhil/Masters students, one was for library professionals, and one was for publishers, funders, policymakers, and stakeholders. The surveys tried to identify various aspects of OA policy, which sought to comprehend the necessity of OA policy from the participants. There are around eleven questions in each questionnaire. Between April 25 and June 25, 2020, data was gathered.

1.7 Study Design

The study design included qualitative and quantitative approaches. To examine the type of research done on open access resources and developing an open access policy in academic institutions, as well as other relevant sectors, the theoretical literature from diverse sources was reviewed in the first phase. For the quantitative phase, a survey of scholarly communities, students, librarians, and policymakers from a sample of academic institutions was carried out using standardized questionnaires. The present inquiry is shown in Figure 1.1:

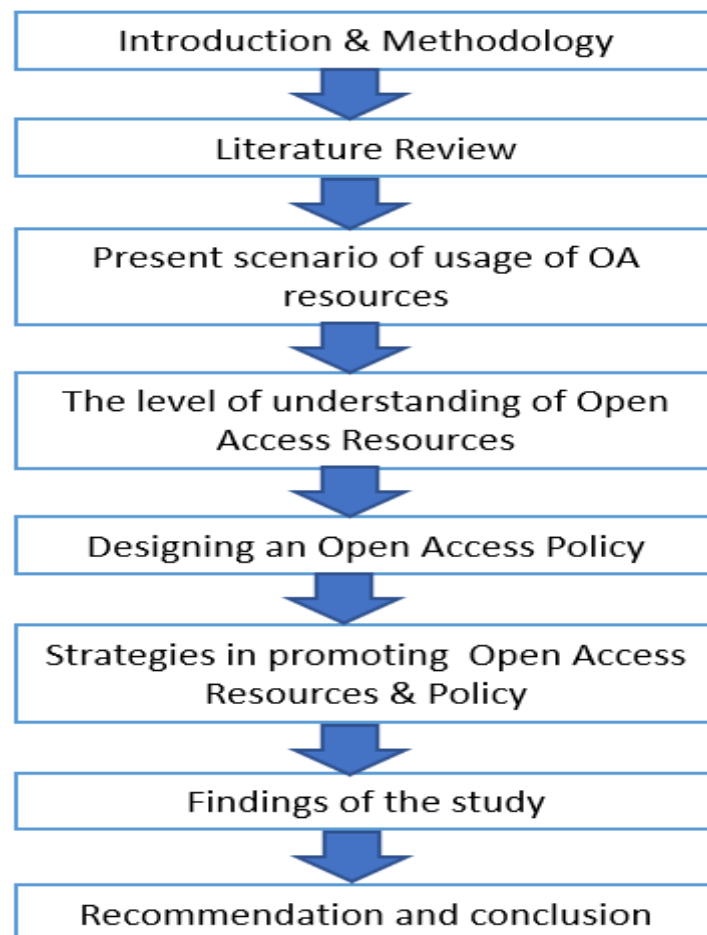


Figure 1.1: Conceptual diagram of the study

1.8 Sample Design:

This study employs both a qualitative and quantitative methodology. Six public and private universities, totaling 12, were investigated to ensure appropriateness.

Table 1.1: Overall sampling of the study

SL	Types of Academic Institutions	Total Number
1	Government Academic Institutions	6
2	Private Academic Institutions	6
Total		12

(A) Twelve (12) academic institutions including 6 (Six) government academic institutions and 6 (Six) private academic institutions of Bangladesh were consciously selected and investigated.

Reasons for selecting the sample (Academic Institutions):

- The academic institutions were chosen after taking their founding year into account.
- Collection of the library of the Academic institution
- When selecting them as a sample for this study, basic infrastructure amenities, academic institutions from different locations, and yearly research expenditures are also taken into account.

Table 1.2: Government Academic Institutions

SL	Name of the Government Academic Institutions	Establishment year	Location
1.	University of Dhaka (DU)	1921	Dhaka
2.	University of Rajshahi (RU)	1953	Rajshahi
3.	Bangladesh Agricultural University (BAU)	1661	Mymensingh
4.	Bangladesh University of Engineering and Technology. (BUET)	1962	Dhaka
5.	University of Chittagong. (CU)	1966	Chittagong
6.	Jahangirnagar University (JU)	1970	Savar, Dhaka

Table: 1.3: Private Academic Institutions

SL	Name of the Sample Private Academic Institutions	Establishment year	Location
1.	North South University (NSU)	1991	Dhaka
2.	International University of Business Agriculture and Technology (IUBAT)	1991	Dhaka
3.	Independent University of Bangladesh. (IUB)	1993	Dhaka
4.	BRAC University (BRAC U)	2001	Dhaka
5.	Daffodil International University (DIU)	2002	Dhaka
6.	Eastern University (EU)	2003	Dhaka

B) 700 (Seven hundred) students from a variety of faculties, including science, social science, business administration, and the arts, were questioned using structured questionnaires and judgment sampling approaches. Following the number of students in each faculty, the researcher distributed questionnaires. A total of 444 participants sent in their completed, tabulated, and evaluated questionnaires (Questions are included in Appendix-1, 2, and 3). The following items make up the sample:

Reasons for selecting the sample (Students):

- Students who have published their work
- Frequent library users
- Experienced in research
- Excellent academic achievements
- Conducting a lottery if there are same-category students.

Table: 1.4: Sampling of Students (MPhil/ Masters level students)

SL	A Sampling of Academic Institution's Users				Total Number
1.	Students (MPhil/ Masters students' level)	Male-298	Public	187	444
			Private	111	
		Female-146	Public	88	
			Private	58	
Total					444

C) To ensure that population parameters were calculated correctly, the samples for this study were carefully selected. The academic institutions were chosen from the University Grants

Commission of Bangladesh (UGC) approved list of institutions based on their founding year, library resources, user base, and high ratings. 600 (six hundred) respondents from the sampled universities' different faculties, including the faculties of science, social science, business administration, and the arts, were surveyed using standardized questionnaires. The surveys, which were filled out and returned by 409 participants, were counted and reviewed. (Appendices 1, 2, 3, and 4 contain questionnaires. The following items make up the sample:

Reasons for selecting the sample (Faculty members):

- Most senior professors of every department.
- Frequent library users.
- Who made use of digital resources
- Conducting a lottery if there are more than two senior professors in the department.

Table: 1.5: Sampling of Faculty Members

SL	Sampling of Users				Total Number
1.	Faculty Members	Male-317	Public	211	409
			Private	106	
		Female-92	Public	57	
			Private	35	
Total					409

D) Using judgment sampling techniques, 100 (one hundred) library professionals from the sampled institutions' academic and public institutions were questioned. 68 persons completed and returned questionnaires, which were counted and looked at, yielding a total of 68.

Reasons for selecting sample (Library Professionals):

- Most senior library professional
- The professional who deals with E-resources and OA resources
- Experienced in research

Table: 1.6: Sampling of Library Professionals

SL	Sampling of Users				Total Number
1.	Library Professionals	Male-51	Public	27	68
			Private	24	
		Female-17	Public	12	
			Private	05	
Total					68

E) Each of the four user groups—funder, policy maker, publisher, and stakeholders—received 25 questions using standard sampling procedures. 93 surveys had been finished, filled out, and returned.

Reasons for selecting the sample (Funders, Policymakers, Publishers, Stakeholders):

- Most senior funder
- Most experience publisher
- Contributor policy maker
- Most senior stakeholders

Table: 1.7: Sampling of Funder, Policy Maker, Publisher, and Stakeholders

SL	Sampling of Users			Total Number
1.	Funder, Policy Maker, Publisher and Stakeholders	Funder	15	93
		Policy Maker	21	
		Publisher	31	
		Stakeholders	26	
Total				93

Overall reasons for selecting the sample:

The study's samples were chosen to ensure an accurate assessment of population parameters.

a) Regarding Institutions: Academic institutions from various locations, basic infrastructural facilities, and satisfactory ranking in academic programs are also considered in taking them as a sample for this study.

b) Regarding Users: Students (MPhil/ Masters students' level), faculty members, library professionals, and policymakers from the sample academic institutions who involve with libraries and academic programs either frequently or on an ad-hoc basis were selected.

1.9 Data collection:

The survey information from certain public and private academic institutions in Bangladesh was a crucial part of the study's data collection. Researchers from these academic institutions were also interviewed to determine how well they understood, used, and felt about open access (OA) resources. A wide range of academic journals, as well as online resources including Google, blogs, and Google Scholar, were used in this study.

1.10 Data processing and analysis:

Two sets of the study's questionnaires were appropriately modified to guarantee that the data reported therein had been filled out carefully and accurately. Each questionnaire was appropriately coded after being adjusted for machine input. When inputting data, the following steps are taken:

- ✓ Putting information into the computer; executing validation tests to make sure data has been entered into the computer correctly and finally preparation of output table.
- ✓ Data entry, editing, and analysis have been performed using MS Office Excel 2010 and SPSS statistical software (20th edition). Bivariate and multivariate analyses, depending on their applicability, were used to show the study's findings in various tables and figures.

1.11 Interpretation of results

Following data processing and analysis, each table and figure was given a physical interpretation that corresponded to the numerical results in the real world. In 20 Tables and 28 Figures, the study's results are displayed.

1.12 Implementation

Three stages were taken to carry out the study:

Step–I: Reviewing all relevant literature that is available and creating a reading list and bibliography for background research;

Step– II: Designing and testing questionnaires, creating samples, gathering and analyzing data, and presenting; and

Step– III: Identifying the issues and making recommendations.

In addition to the aforementioned, several more methods and tactics have been employed to find pertinent material and guarantee the success of the investigation. These include, among other things, reading through credible publications, going on research excursions, performing different content evaluations, personally consulting with senior subject-matter experts, and visiting websites and digital archives.

1.13 Organization of the Text

The following nine chapters, including the preliminaries and appendices, comprise the dissertation's material and are arranged logically in order of importance.

Chapter 1: The backdrop of the study, definition, justification, goals, scope, significance, The technique used in the investigation and structure are all covered in Chapter 1.

Chapter 2: This chapter reviews the relevant literature in a worldwide and national context that is mostly related to difficulties with open access resources and open access policy.

Chapter 3: Present scenario of usage of OA resources in Academic Institutions of Bangladesh.

Chapter 4: The level of understanding of Open Access Resources amongst students and the scholarly community in academic institutions of Bangladesh.

Chapter 5: Strategies for Encouraging the Promotion of open access in Bangladesh

Chapter 6: Open Access Policy for Academic Institutions of Bangladesh: A Proposed Model

Chapter 7: Strategies for Implementing Open Access Policy in Academic Institutions in Bangladesh

Chapter 8: Findings of the Study

Chapter 9: Recommendations and Conclusion

The study concludes with some suggestions, limitations of the study, and future implications.

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Chapter 2

Review of the Literature

Section-1

2a. Studies on Open Access Resources:

International context

Section-2

2b. Studies on Open Access Resources:

National context

Section-1

2a Study on Open Access Resources: International Context

It is necessary to go through all published materials in a literature review to locate any references to the subject of interest. This covers publications including books, magazines, newspapers, websites, webpages, collections, articles, and pamphlets. After analyzing earlier pertinent research, books, dissertations, and journal articles, the researcher found various publications on open access, open access repository (IR), the OA movement, the OA journals, and other related features of OA.

Open access is becoming more and more popular all around the world. The topic has garnered a lot of interest as it relates to open access materials and their effect on collection creation initiatives.

According to a review of the international context literature on the subject, open access (OA) stimulates greater information sharing, lowers access barriers, and gives researchers more alternatives for disseminating their work and establishing a strong reputation. By allowing rapid and unrestricted access to the most recent research, OA encourages innovation and creates a more equitable knowledge system for everyone. Because of this, open access is becoming more and more popular in the developed, underdeveloped, and developing worlds. Numerous studies carried out by eminent librarians and information specialists worldwide have shown this to be the case. Below are quick summaries of the relevant literature:

2a.1 Library collection through open access resources

The world of information has already experienced a significant change in the Internet era, with open access journals and archives already playing a significant role in intellectual communication. More change should be expected as we continue to examine all of the new media's potential. Instead of focusing on a single object, future libraries may feature complete collections of digital texts, files, data, and links. The librarians demonstrate the significant role that open access plays in strengthening collections because they are the leaders in scholarly communication efforts at their respective institutions. By assisting OA projects, libraries are now actively managing the transition to OA (Lewis, 2013).

There are several research on various facets of collection growth and the implications of open access. The reasons for the inclusion of electronic resources in collection development are discussed by [Thornton \(2000\)](#). [McGuigan \(2008\)](#), on the other hand, focuses on the traditional collection growth method used by academic libraries and their transition to using digital information sources. The results of two surveys that were undertaken concurrently in 2008 as part of a broader initiative to examine the implications and effects of open access to scientific discoveries in the United Kingdom were summarized by [Creaser \(2010\)](#). It was discovered that the availability of reliable scholarly information on open access platforms had a favorable effect on the amount of money certain universities spent on journal subscriptions. Although the effect did not result in a reduction in total spending, it did encourage them to redirect it. [Okello-Obura \(2010\)](#) investigated information-seeking behavior and outlined the challenges Makerere University, Uganda, LIS postgraduate students faced while trying to acquire online resources. The respondents had a positive outlook on using electronic resources. Some of the problems mentioned include slow Internet connection, a shortage of linked computers, the inability to utilise the library's inexpensive photocopiers, the use of sophisticated search techniques in most databases, and a general lack of understanding of most e-resources. While [Nwosu and Udo-Anyanwu \(2015\)](#) examined the performance of the collection development approach at five university libraries in Imo State, Nigeria to pinpoint potential operational issues and offer fixes, [Mullen \(2011\)](#) focused on the effects of using open access in academic libraries' collection development. After more than a decade of library advocacy for open access, he said that it was time to turn our attention to the practical side and move towards the adoption of specific initiatives that are likely to produce real and advantageous consequences. They will benefit from having a better understanding of the kinds of contributions that front-line librarians may make. The growing popularity of e-journals can be attributed to information science students' increased familiarity with online resources and services. Information science students at Jimma University in Ethiopia were the subject of research by [Natarajan \(2017\)](#) to determine how, when, and where they use electronic resources. They are accessing these resources more frequently in dorms and departments than at the library since they are so accessible at many locations throughout campus. To be eligible for research evaluation, the UK Higher Education Funding Council proposed in 2013 that all peer-reviewed journal articles, regardless of whether they are published in a subscription-based journal or a Gold OA journal, be deposited in the author's institutional repository as soon as they are accepted for publication. ([Harnad, 2015](#))

Morrison (2007) asserts that the expansion of library collections will depend on open access and that when libraries make the switch to OA, librarians may be able to save money on collection development costs and maintaining serials. It is also stated that there may be a lack of awareness of possible obligations in a changing vision of academic communication that includes advocacy for openness as well as responsibility for involvement in local, national, and international activities.

2a.2 User Perception on OA Resources

Open Access (OA) resources are being used by teachers and students more often. Research on open access resources has been extensively conducted in universities all around the world. Numerous researchers examined how knowledgeable, capable, and perceptive users were of open-access materials. According to Lwoga's (2013) assessment of faculty knowledge, attitudes, and utilisation of open scholastic communications in Tanzanian health science institutions, senior faculty members with more proficient technical abilities used OA resources more frequently than younger faculty members. ICT infrastructure, a lack of knowledge, journal author remuneration schemes, copyright constraints, and problems with plagiarism are the main obstacles to OA acceptance, according to this study. Stanton and Liew (2011) investigated the knowledge of and attitudes towards open access materials among doctoral candidates. The results showed that most students preferred open access materials. This showed that there is still a problem with OA knowledge and practises. However, this issue may be resolved by examining the efficacy of various communication strategies for OA resource assistance. According to Kaba and Said (2014), 91% of faculty members understood and had a positive opinion on open access resources. They frequently used open access resources in their research, learning, and classes. They found that faculty members who are female are more likely than faculty members who are male to use OA resources. Kusekwa and Mushowani (2013) looked at the state of open access (OA) projects in Zimbabwean universities. They discussed initiatives taken by institutions in Zimbabwe to promote open access and other digital open access collections through repositories.

Gaines (2015) published the results of a study that was conducted among professors from a variety of academic fields to examine their attitudes, perceptions, and knowledge about open access publishing and related topics. According to his results, faculty members were dubious about the value and trustworthiness of open access publications and were especially concerned about their usage in the hiring and promotion process. Professors who were surveyed tend to

have negative perceptions about open access mostly due to misunderstanding, a lack of willingness, and fear. [Iton and Iton \(2016\)](#) looked at the opinions, familiarity, and use of open access among professors of science at The University of the West Indies. The results showed that this group had significant knowledge gaps on open access as a publication method and little interaction with it. [Sheikh \(2019\)](#) found that although the majority of academic members in Pakistan (71.5%) were aware of scholarly open access before the survey, they had very little understanding of the resources and initiatives linked to open access. Instead of publishing their research articles, Pakistani academicians used open access sites more frequently to study scholarly literature. To find out how 116 LIS professionals from different university libraries in Odisha felt about the open access system and what factors they took into account when selecting open access journals for publishing, [Majhi, Baral, and Maharana \(2018\)](#) surveyed these experts. The results of the survey demonstrated that most participants were aware of open access publications and had thought of them as Scholarly Literature. The majority of authors, however, disagreed with having to pay Article Processing Charges (APC) for their research publications to appear in open access journals.

2a.3 Policy as a prerequisite for ensuring OAR usage

In 2003, the University of Southampton School of Electronics and Computer Science implemented the first Green OA self-archiving mandate in history. In the US, EU, Canada, Australia, and other countries, funding organizations and institutions have required Green OA self-archiving since 2004. Over 600 Green OA mandates had been implemented by the middle of 2015, with universities adopting 5 out of the 6 requirements that funders adopted. In the US, OA is required by the National Institutes of Health, 33 funding organizations, Harvard, MIT, and 119 other universities and research organizations. The situation at the University of Kansas (KU) before the implementation of an open access policy was detailed by [Emmett et al. \(2011\)](#), as well as the organizations set up and given responsibility for developing and disseminating the policy among faculty. The article also took into account the concerns voiced by KU professors, as well as how the library and organizations involved in policy promotion responded to these concerns. Similarly, to this, [Smith \(2012\)](#) talked about the circumstances at Duke University before its open access policy was approved in 2010 and the actions done to ensure its acceptance. In developing a workflow, most institutions follow a similar process, according to [Duranceau and Kriegsman's \(2013\)](#) examination of multiple university libraries as "early adopters" of open access policy. Their analysis indicates that libraries now acquire

the bulk of academic papers. Only when a published work or post-print cannot be obtained elsewhere are faculty members commonly contacted. The infrastructure needed for collecting and internally managing publications is something libraries can purchase or construct. Many institutions use Scopus, Web of Science, or equivalent tools to find faculty papers. Others use Symplicit Elements, a for-profit information management system that collects citations from several websites and academic databases or is considering doing so. They also investigated the OA policy procedures' personnel. Most libraries "repurpose existing employees" to concentrate on OA policy implementation.

The UK Higher Education Funding Council proposed in 2013 to require that all peer-reviewed journal articles, whether they are published in a subscription-based journal or a Gold OA journal, be deposited in the author's institutional repository as soon as they are accepted for publication to be eligible for research evaluation. According to [Harnad \(2015\)](#), the implementation of open access rules by academic institutions, funding organizations, and publishers led to certain advancements in scientific publication. However, a sizable portion of scientific articles continues to be hidden behind paywalls, necessitating the funding of both journal subscriptions and gold OA author publication expenses by institutions. To hasten the development, more organizations and donors must accept stricter OA mandates: All academic institutions and shareholders should demand the following: (1) organizational deposit; (2) immediate OA; (3) immediate rights retention; (4) limit embargo length; (5) incorporate the copy-request Button; (6) offer rich usage and citation metrics; and (8) designate repository deposit of publications as the location for infrastructural performance evaluation as well as funding applications and renewals. The open-access mandates and practices of government agencies, research organizations, and higher education institutions are subjected to critical analysis in a paper by [Rao \(2018\)](#). In India, there are now 236 active open access journals that are listed in DOAJ as of 2018. Additionally, 79 open access repositories in India are run by academic and scientific organizations. The National Knowledge Commission (NKC), Open Access India, ShodhGanga: Reservoir of Indian Theses, Indian Institute of Technology, Hyderabad, and other organizations are among the 16 Indian institutions and organizations that have enrolled in Open Access Repositories Mandatory Archiving Policies (ROARMAP) and are required to publish their academic outputs on OA. To provide a single mandate for the research publications of the Indian academic community in open access, the article suggests that University Grants Commission (UGC) and All India Council for Technical Education (AICTE) step forward.

2a.4 Open access publishing

Nearly 4000 professional authors are represented in [Nicholas et al. \(2005\)](#)'s presentation of the views and experiences they have had with open access publishing. The study's key conclusion was "the pervasive ignorance of OA publishing on the part of relatively senior scientific authors" (p. 515). This survey found that 55% of writers considered open access journals to be poorly kept, whereas the remaining 45% thought open access resources were high-quality articles. This study emphasizes the significance of the knowledge gap between writers and OA publishers. According to [Mullen \(2011\)](#), "With libraries moving towards digital publishing as a central or peripheral role, librarians have had to envision the library as not just a place to hold collections but as a possible creator of scholarly publications." According to research by [Fernandez and Nariani \(2011\)](#), some Canadian research libraries offer institutional memberships or author subsidies to help authors publish in open access journals. [Stuart and Nelson \(2012\)](#) discovered that 63% of libraries in Canada have the greatest collection of Electronic Theses and Dissertations (ETDs) in their IRs. Oral histories, journal papers, pictures, and research data are among the other resources. [Aharony and Hadad \(2022\)](#) looked at 202 Israeli academics to better understand the trends, intentions, and awareness around scientific publication in open access (OA) journals and archives. The investigation showed that most researchers conflated gold/green routes with closed (traditional/toll access) journals. Researchers discovered a high correlation between writers' propensity to avoid publishing in open access and their lack of knowledge of key OA topics. Researchers also tended to publish fewer works under open access if they stated that their department had a clear policy against publishing work in high-impact journals. The two biggest obstacles preventing academics from publishing using OA channels were a lack of funds and ignorance. The necessity for an OA's public policy, as well as financial and informational support, was stressed in the conclusions.

[Benjamin, Sivaram, and Shanmugam \(2023\)](#) used the self-administration technique to survey 100 nursing faculty members on their awareness of open access in scientific publishing, as well as their perceptions of its advantages and barriers to successful usage. The study's methodology was descriptive correlational. The study found a sizable knowledge gap between postgraduate and undergraduate professors regarding open access academic publications. The authors [Frank, Foster, and Pagliari \(2022\)](#) aimed to characterise the nature of the sharp contrasts among the sector's stakeholders, consider their systemic roots and investigate the likelihood of realising OA's anticipated benefits and avoiding its dangers and costs in the future. In the process, they

highlighted some of the injustices that article processing fees (APCs) cause for other groups, including young or underfunded researchers, academics from resource-poor regions, and academics from other backgrounds. These injustices are brought on by OA, which is a publishing model that promotes open access (OA). [Huang et al. \(2020\)](#) looked at how specific universities performed in terms of open access during the previous 20 years concerning funding needs, institutional policy, and shifting views within the academic community. They discovered that in 2017, the world's best institutions made between 80 and 90% of their research freely available. [Bawack and Nkolo \(2018\)](#) discussed the condition of open access in developing countries with a focus on academic libraries in Cameroon. They talked about several kinds of open access (OA), as well as the steady development and growth of journals included in the Directory of Open Access Journals (DOAJ). The advantages of open access, its impact on the academic community, and the synopsis of OA initiatives in Cameroon were all examined. [Olubiyo \(2021\)](#) discussed the various open access journals, online academic publications, and well-known open access publishers and explained how university libraries play a crucial role in supporting open access via online academic publication. They recommended, among other things, that academic library collections be transferred to digital formats to facilitate open access and that faculty members publish online in the digital age for open access.

2a.5 Need for promotion for open access resources

Open Access (OA) is a relatively new idea that has been greatly affected by developments in information and communication technologies (ICTs). The development of ICTs led to a sharp rise in journals, and other educational materials, and the simple accessibility of research findings to a larger audience. [Suha and Arya \(2013\)](#) looked into the trends and growth of open access efforts in India. By posing some straightforward questions on open access, they attempted to gauge the level of understanding among scientists, researchers, and scholars. They discovered that 41% of researchers stated they knew "nothing at all" and 33% said they knew "little" about open access publications. Finally, they constructed a comparison of the contributions contributed to open access publication by various topic areas. [Grobowsky \(2015\)](#) investigated if and how the addition of OA resources has affected collection development and/or access control procedures in academic libraries. In a setting where users and resources were dispersed across different regions, he also covered the Open Access (OA) and Institutional Repositories (IR) projects for worldwide access, repository, preservation, and organized

administration of networked information services. University libraries may actively collaborate with journals to facilitate open access to research, according to [Ward and Joanie \(2016\)](#). They gave an outline of a joint strategic initiative by the Érudit Consortium (Érudit) and the Canadian Research Knowledge Network (CRKN) to promote the transition of Canadian francophone scholarly publications to open access. [Sing \(2016\)](#) found that higher education and research institutions are increasingly following trends towards the creation of OARs. The intellectual product of the institutions, which may be a research organization or university, is disseminated through them, according to his argument, to the communities and the general public. OAR systems are often utilised at many universities.

[Gohain, Angadi and Yadav \(2016\)](#) centred their analysis on an overview of open access journals published in India. They also talked about the state of open access today, including initiatives made by different institutions and organizations, open access journals, and open access repositories. The required open access publication rules adopted by many Indian academic, research, and funding organizations are highlighted in their study. [Sasikala et al. \(2014\)](#) looked into trends in collection development activities in college and university libraries in Andhra Pradesh, India, within the context of the Indian subcontinent. They also briefly discussed the impact of electronic publication on the growth of library collections, in contrast to [Bullock et al. \(2015\)](#) who conducted a 25-question survey to learn about librarians' experiences with managing open access resources and the advantages and disadvantages of management systems. Issues raised by respondents included hybrid open access, strange metadata, and unequal engagement during the development of serials. [Mullen \(2011\)](#) stated that there is an opportunity to encourage open access publications, databases, monographs, and electronic theses. The way the movement is expanding and transforming collection development practices is influenced by geographic dispersion, the current political environment, and educational realities. Because they are in charge of academic communication initiatives at their institutions, the librarians serve as excellent examples of the major contribution that open access makes to enhance collections.

2a.6 User attitude and practice towards Open Access resources

Open access has recently received a lot of attention in this era of information. Some people think that open access might be a solution to the growing price of serials and a way for government funding agencies to achieve a better return on their investment. Numerous academics from throughout the world looked examined consumer understanding, usability, and

attitudes towards open-access content. [Fullard \(2007\)](#) conducted a poll of academics, researchers, publishers, and government officials in South Africa to learn about their perceptions of open access materials as well as their difficulties and engagement. The study found that faculty members showed minimal interest in contributing to open access papers. [Dulle \(2010\)](#) investigated open access academic correspondence among Tanzanian university professors in comparison. This survey's results showed that 72% of faculty members were familiar with open access resources. Additionally, this survey found that faculty members' attitudes towards OA were largely positive. On the other hand, teachers and other faculty members identified a lack of a permanent platform, a lack of online publishing skills, and apathy towards technology as the biggest obstacles to utilizing OA services. To understand more about university engineering professors' OA practices and viewpoints, [Mischo and Schlembach \(2011\)](#) surveyed them. Engineering professors' scholarly communication demands and activities are more varied than those of other researchers because they have access to a wider and more varied body of literature, which includes scholarly articles, conference proceedings, technical reports, benchmarks, handbook information, copyrights, and grey literature. The survey's results revealed reluctance to self-archive in the university's institutional repository as well as doubts about the author-pays model. Using Qualtrics, [Yang and Li \(2015\)](#) found that tenure-track teachers are more open to new initiatives like Open Textbooks, but tenured academics at their institution are more active and interested in OA publishing issues generally.

Educators who choose not to engage in [Cronin's \(2017\)](#) examination of open educational practises among those who use and don't utilise OER (Open Educational Resources) gave as reasons a lack of confidence in the pedagogical advantages of open practises and a reluctance to add to their workloads. Therefore, completely open education may or may not become the norm over time. The goal of [Thompson and Muir's \(2020\)](#) study was to investigate the reasons that led to the support of two university libraries in Scotland that provided OER services and to assess their potential to do so in the future. The study's findings showed that while university libraries could be able to offer support services, institutional culture and policy would need to support and promote OER with adequate financing for the libraries to be able to do more. External factors could also be needed to give higher education institutions the financial and reputational incentives they need to adopt open educational resources (OER) and open practices, such include OER in assessments of teaching effectiveness.

Section 2

2b. A Study on Open Access Resources: National Context

A survey of the literature reveals that academic institutions in Bangladesh that have implemented or intend to implement an open access policy have not been in-depth examined. However, this is not specific to Bangladesh; there is a dearth of research on open access legislation anywhere around the globe.

A study of the state of open access initiatives intended to improve research and information distribution was provided by [Islam and Akter \(2013\)](#). To improve the current situation, they made some recommendations to the different institutional authorities. The future of open access initiatives in Bangladesh was also covered in their research, including plans for many more open access publications and online archives. On the other hand, [Uddin et al. \(2014\)](#) went through the advantages of open access to research communities, crucial ICTs in Bangladesh, institutional repository activities in Bangladesh, and OA initiatives in Bangladesh. [Elahi and Islam \(2018\)](#) pointed out the paucity of institutional repositories (IR) and the delayed development of open access repositories. They looked at the general state of OA repositories and emphasized how crucial it is for the general public to be aware of OA repositories for them to survive and grow. [Hossaini \(2017\)](#) tried to illustrate the situation of the electronic resources at North South University and Dhaka University libraries. His research highlighted the benefits of utilizing e-resources, as well as the difficulties users have when gained access to them and the impact e-resources have on users of university libraries. Although the phrase "open access" has been used often by academics throughout the world for more than 50 years, it is a fairly new and nebulous notion in Bangladesh. To lessen the strain that journal subscription costs were placing on library budgets, such a movement was started in Bangladesh. By making their health publication (publication of Diarrheal Diseases Research) accessible to the public, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) launches the first OA effort in Bangladesh in 1997 ([Uddin et al., 2014](#)). [Elahi, Begum, and Munshi \(2021\)](#) evaluated the state of open access repositories in Bangladesh and India using a predetermined set of standards. The results revealed that 108 Bangladeshi repositories in total have registered with Directory of Open Access Repositories. OpenDOAR. [Das \(2019\)](#) made numerous recommendations for enhancing Bangladesh's IR and open mobility. He looked at current open access publishing trends in light of Bangladesh's open access journals and repositories and

found that the country's higher education and research institutions are progressively leaning towards the creation of open access repositories. Thanks to Bangladesh Journals OnLine (BanglaJOL), about 97% of Bangladeshi journals are published online for free. A study of faculty members at the University of Dhaka found that 21% of them exclusively choose open access journals for their scholarly and research requirements. According to [Shuva and Taisir \(2016\)](#), 50% of faculty members are unaware of predatory open access articles and the author-pay OA publishing model.

2b.1 Collection development through open access resources in Bangladesh

The extent of student and academic community understanding of open access resources and its effects on collection development in academic institution libraries in Bangladesh has not been studied, even though there is a wealth of literature on the subject from many perspectives. In Bangladesh, the concepts of open access use and its function in collection development are still relatively new. The OA journey started with a few selective libraries in Bangladesh after 2000. To learn more about the current status of open access (OA), its resources, individual contributions, and prospective future orientations, it is required to review research publications.

Open access institutional repositories' survival is reliant on a variety of issues, including challenges with copyright, institutions, motivation, finances, maintenance, technology, and future expansion.

[Islam, Bhattacharya, and Tonmoy \(2022\)](#) analyzed the state of open access (OA) resources at six private and public institutions in Bangladesh as well as students' comprehension, use, and attitudes towards OA resources. It was difficult for information officers and librarians to subscribe to and keep track of all the information sources that were accessible. It was interesting to see that none of the institutions conducted needs assessments before using OA resources. A 2018 investigation on the topic found that Bangladesh had only 12 open access repositories. Institutional repositories, which make up the bulk of the kind, make up ten of the twelve repositories. In terms of collections, only three repositories—the ICDDR, B Digital Repository, the BRAC University Institutional Repository, and the Knowledge Repository, ICDDR, B—have collections with more than 5000 records. Journal articles, theses, and dissertations make up 23% of the content types in these repositories. The remaining elements include conferences and workshops (11%), unpublished reports and working papers (20%), and unpublished reports. The bulk of OARs in Bangladesh used a multidisciplinary subject approach,

accounting for 26% of the total repositories. [Islam, Islam, and Sorkar \(2017\)](#) also looked at the open access rules for institutional repositories in a few particular Bangladeshi libraries. Additionally, they recommended a sustainable repository layout for libraries in developing countries.

2b.2 User Perception of Open Access Resources

No studies have been done on the evaluation and utilization of open access materials by academic staff at Bangladesh's top institutions, except for the University of Dhaka. A handful of the studies mentioned different aspects of open access, but they do not particularly address faculty members at public or private institutions' opinions or their use of open access resources in Bangladesh. Faculty members' understanding, attitudes, and use of University of Dhaka open access publications were examined by [Shuva and Tasir \(2016\)](#). They also looked into the variables that affect academics' choices to publish in open access journals. The understanding, use, and attitudes of students towards open access materials in Bangladesh's public and private institutions are examined by [Islam et al. \(2022\)](#). They observed that 60% of students think their schools have adequate open access materials, whereas 40% think they don't. Only 50% of them use OA resources often, 30% are aware of them but have never used them, and the other 20% are not familiar with them. [Sultan and Rafiq \(2021\)](#) analyzed the perceived level of Open Access (OA) consciousness as well as its difficulties and promise. The lack of additional resources (people, time, and energy), mistrust in OA content, and a lack of suitable infrastructure and tools were all major issues. Free access, enhanced library value, and satisfying users' requirements on a limited budget were the top three prospects mentioned. [Mahmud et al. \(2020\)](#), who conducted a study at four Rajshahi University research centers, looked at staff and student attitudes and awareness of open access resources. Both staff and student impressions of open access resources (OARs) were favorable, according to researchers who employed a mixed-method approach to assess their awareness of and attitudes towards OARs. However, professors understood the fundamental OA ideas better than students did. OARs' availability for free and digital nature was mentioned as motivating factors for their utilization.

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Chapter 3

Present scenario of usage of OA resources in selected Academic Institutions

Section-1

3a. Collection development through open access resources:

Public academic institutions' context

Section-2

3b. Collection development through open access resources:

Private academic institutions' context

Section-1

3a. Collection development through open access resources: Public academic institutions' context

Libraries and librarians will profit from gathering a sizable, free collection of information resources through open access services and highlighting the benefits difference between open access users and non-users. The idea of the open access movement in Bangladesh is to lessen the significant financial strain that journal subscriptions have on libraries. In truth, university libraries in the vast majority of developed countries see open access content as a crucial component of their collection growth plan. In this study, I seek to understand the current state of open access (OA) resources in Bangladeshi public university libraries, collection development policies, the viewpoints of the library authority, the difficulties libraries encounter when incorporating OA resources into their collection development, and solutions to those difficulties.

Open access, according to the Open Society Institute (OSI), is the "free availability of publications on the public internet, letting any users to read, download, copy, distribute, print, search, or link to the complete texts of these publications, crawl them for indexing, view them as data to software, or use them for any lawful purpose without financial, legal, or technological barriers other than those inherent in obtaining access to the internet itself without any financial gain. An author's power over the integrity of his output and the right to proper acknowledgment and citation should be the only limitations on replication and dissemination.

Some authors found it difficult to define "Open Access" precisely because they had no idea how to approach the subject. Some of them mixed up the idea of open access with that of an open repository. The literature review provided the author with a number of precise definitions, including this one: "Open Access (OA) literature is digital, online, cost-free, and free of most copyright and licensing restrictions." It is made feasible via the internet and the author's or copyright holder's permission. ([Suber, 2012](#)).

From these angles, we may conclude that open access is a body of work that may create a new platform for knowledge by making all articles available everywhere, accessible to everyone without any restrictions, stipulations, or ties, and able to be shared or downloaded.

By the International Federation of Library Associations and Institutions (IFLA), "acquisition and collection development focus on methodological and topical themes about the acquisition of print and other analog library materials (by purchase, exchange, gift, and legal deposit), as well as the licensing and purchase of electronic information resources." Most collection development is merely technical work done by the librarian or other staff members. The library is used to compile data on the demands of the users to properly support them during this procedure.

When working on open access for collection development, librarians must contend with the following three realities:

1. Users are overwhelmed by the range of choices and informational forms.
2. It is challenging for libraries to keep up with demand due to budget cuts and increased costs.
3. Governments are implementing regulations demanding public access to research findings, and funding organizations are doing the same. The popularity of citizen science is rising.

It is evident from the explanation above that OA has developed a platform that disobeys all types of limitations. The primary objective of this article is to emphasize the importance of publicly accessible materials to the expansion of the collection at six specific Bangladeshi libraries. This survey also examines the degree of patron satisfaction with the open access resources available at those libraries. Additionally, it looks for workable answers to all of the challenges that librarians have when attempting to obtain open access items for collection building.

To examine the current state of open access resources in Bangladeshi public university libraries' collection development policy, the opinions of the library authorities, and the challenges libraries face when incorporating OA resources in their collection development, this study used a quantitative method.

3a.1 The scenario of OA in collection development in academic libraries of Bangladesh:

Since a library is a continually expanding infrastructure, the librarian is constantly driven to expand the collection. Due to budgetary limitations for current and potential users, a librarian must always seek to obtain sufficient information resources and collection expansion. The capacity to handle a consistent flow of updated collections provided by open access enables librarians to keep up with shifting information trends.

The first public institution in Bangladesh, University of Dhaka, was established in 1921, while the British Emperor was in charge of this area. Since then, 45 additional public colleges have opened across the country (UGC Report 2021). These university libraries have just recently begun to adopt a small number of open access initiatives. Bangladesh Agricultural University (BAU), Bangladesh University of Engineering and Technology (BUET), University of Chittagong (CU), University of Rajshahi (RU), and University of Dhaka (DU) are the six public institutions in the country.

Table 3.1: The number of reading materials of the selected public universities (UGC report 2021):

University	Year of Establishment	Total Resources	Institutional Repository (IR)	Open Access Resources	Considering OA resources in the library collection
DU	1921	6,97,406	YES	Yes	No
RU	1953	3,65,581	YES	Yes	No
BAU	1961	2,05,461	YES	Yes	No
BUET	1962	1,38,117	YES	Yes	No
CU	1966	3,44,975	YES	Yes	No
JU	1970	1,96,944	YES	Yes	No

Table 1.1 provides information on the total amount of reading materials from six public university libraries. Access to institutional repositories and open access content is available to each of the six institutions. In most cases, OA materials greatly increase the value of their repositories. As a result, when using the repository, users are aware of open access content. However, open access resources are not regarded as a component of Bangladesh's public universities' entire collection. Because of this, most university students are unaware that their library has items that are accessible to the general public. Additionally, libraries continue to

favor traditional resources over open access ones. Despite some universities' efforts to embrace open access, the bulk of libraries grow their holdings the traditional way through purchasing. Participants in this survey, including students, researchers, and academic staff, said that barriers are caused by ignorance, a misunderstanding of open access, a lack of technical expertise of library employees, a lack of interest on the part of library management, and a communication gap with the current libraries. The respondents said that the majority of the time the servers for the library websites are down, thus they are unable to access the content.

3a.2 University of Dhaka (DU):

On July 1, 1921, University of Dhaka established the Dhaka University Library (DUL) as a division. The library began with 8,000 books from Dhaka College and Law College. 97 DU participants were given the questionnaire for this study. 65 of them were students, and 32 were teachers. The pupils were given the responsibility of evaluating the open-access sections of their neighborhood library.

A list of the materials available at the DU library:

Name of the content	Number of the resources
Books & Magazines	6,80,000
Rare Manuscripts	30,000
Rare Books	20,000
IR Items	2,000

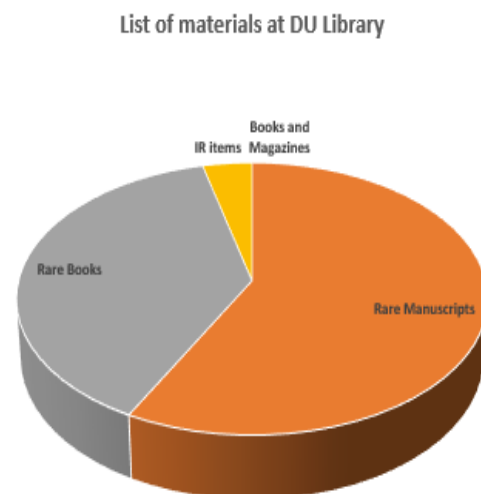


Figure 3.1: List of materials at DU Library

3a.3 University of Rajshahi (RU):

The University of Rajshahi Central Library (RUCL), which supports the university's higher education and research programs, was founded in 1955. 109 people from RU were involved, including 39 staff members and 70 students.

A list of the materials available at the RU library:

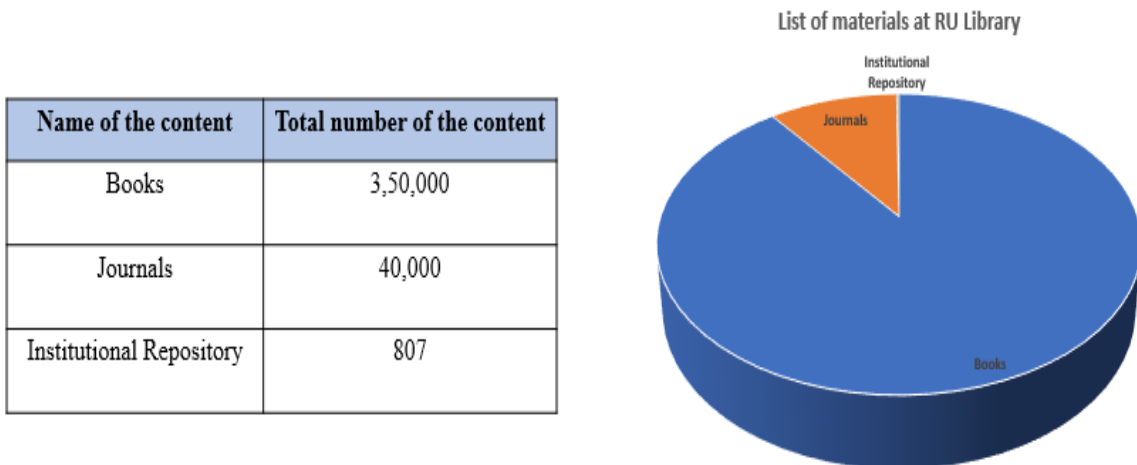


Figure 3.2: List of materials at RU Library

3a.4 Bangladesh Agricultural University (BAU):

The East Pakistan Agricultural University Library (PAUL) changed its name to Bangladesh Agricultural University Library (BAUL) in 1961, the same year the institution was founded. The first volumes the BAU Library purchased were Vols. 5000 of the East-Pakistan College of Veterinary Science and Animal Husbandry for use in studying and researching agriculture and related topics. There were 84 participants from BAU, including 25 academic members and 59 students.

A list of the materials available at the BAU library:

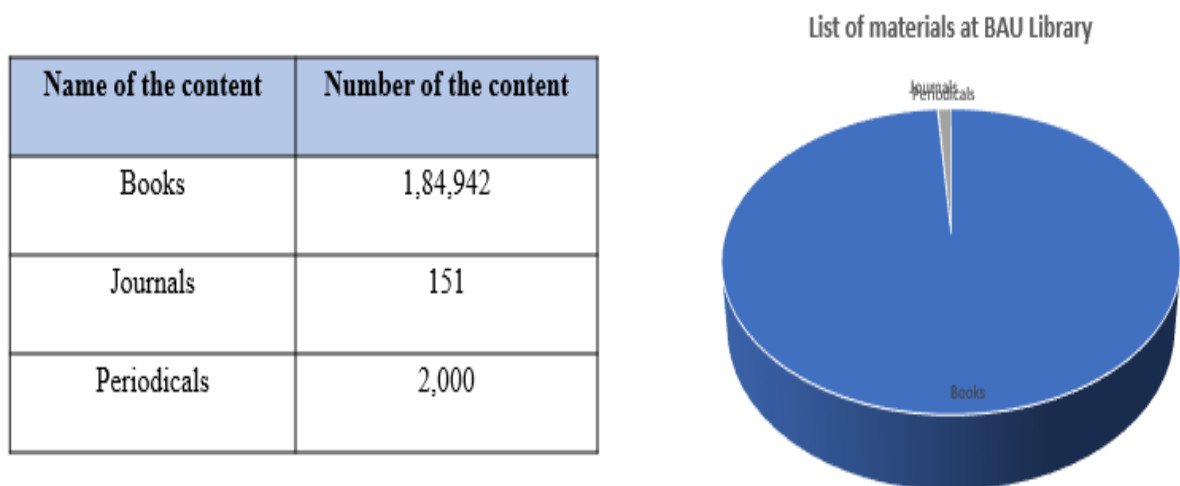


Figure 3.3: List of materials at BAU Library

3a.5 Bangladesh University of Engineering and Technology (BUET):

Bangladesh University of Engineering and Technology library is located next to the academic buildings in a four-story building with around 20,000 square feet of floor space. It is a small library with built-in administrative, technical, and services for academics, researchers, and students. Our research focused on 89 BUET students and 26 faculty members.

A list of the materials available at the BUET library:

Name of the content	Number of contents
Printed books	1,25,066
Periodicals	17,847
Institutional Repository (IR) items	5,704

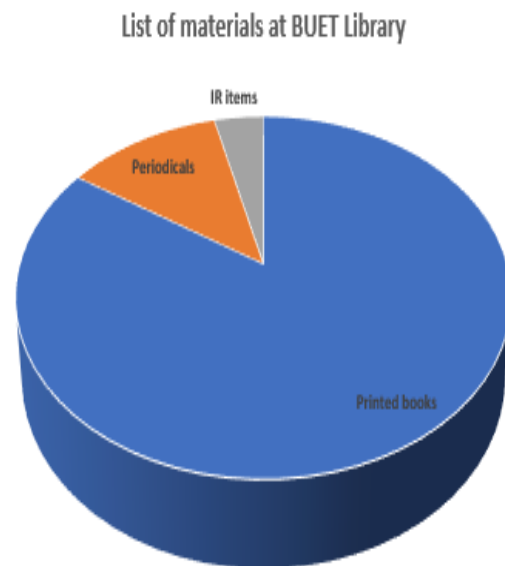


Figure 3.4: List of materials at BUET Library

3a.6 University of Chittagong (CU):

Chittagong University Library began welcoming visitors in November 1966. The library's initial stock included only 300 volumes and a small staff. Chittagong University Library was formed to aid its parent organization in accomplishing its goals and objectives. There were 68 participants from CU in all, of which 44 were faculty members and 24 were college students.

A list of the materials available at the CU library:

Name of the content	Number of contents
Books	3,50,000
Periodical subscription	415
Journals	40,000
Rare Manuscripts	600+
Talking books	200+
E-books	300+
Braille books	50+

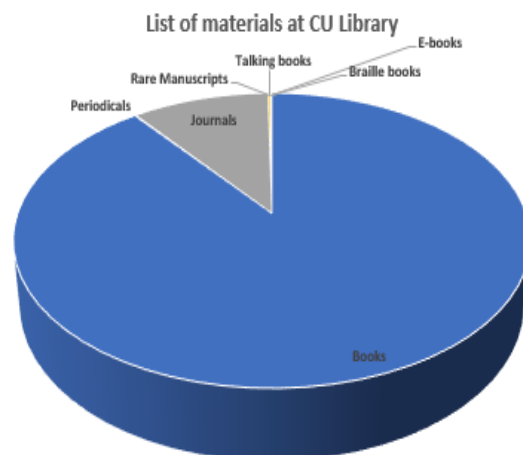


Figure 3.5: List of materials at CU Library

3a.7 Jahangirnagar University (JU):

The JU library was established in 1985 and contains a substantial book collection. The library features a stunning architectural layout with lots of glass. 71 students from JU took part in this study. There were 12 faculty members and 59 JU students present.

A list of the materials available at the JU library:

Name of the content	Number of contents
Books	110,000
Hardbound journals	14,000
Online journals	22,000

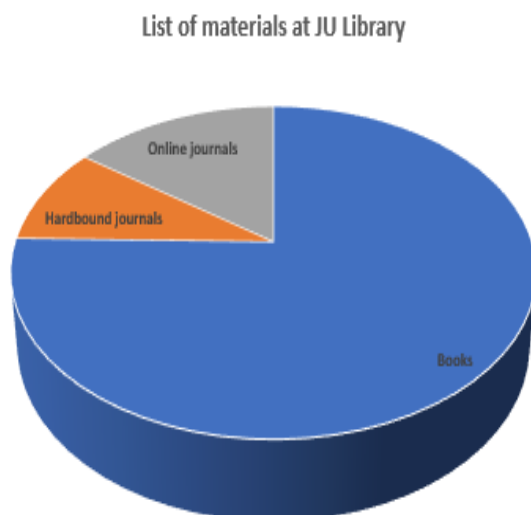


Figure 3.6: List of materials at JU Library

3a.8 Discussion:

To better understand how open access materials are utilized and viewed in the expansion of library collections, the research performed a case study of six public institutions. The majority of the goals are accomplished through conclusions or suggestions. Open access resources are a topic that many people are familiar with. The majority of respondents read books, academic articles, and open journals despite their lack of experience. None of the six public university libraries have a large collection of OA publications, and none of the library websites offer a dedicated way to search for OA resources. There are a few institutional repositories that have a few open access items. Even though their platforms don't have a complete selection of OA resources, the library managers assert that if a user asked for one, they would nonetheless make one available. In other words, librarians do not view open access materials as a necessary part of their collections. As a result, OA resources are unable to significantly contribute to the growth of library collections, depriving users of not only the many advantages of OA resources but also their ability to use them.

Finally, we found that all those public university libraries undervalue open access content when it comes to collection development. It has been shown that, even when adequately informed about open access, librarians and other library professionals lack the will and skills necessary to use open access to improve their library collection. Because of this, none of the libraries allows its users to access sufficient free materials. The information shows that libraries may create sizeable collections even with a low budget if they concentrate on adding a sufficient number of open access materials and specialized platforms for accessing those resources. Users may then browse and use a wide range of information. User satisfaction would increase as a consequence, and local and national development studies would advance more quickly. Additionally, free resources would improve the university's overall academic performance.

3a.9 Recommendations & Conclusion:

Academic librarians need to be aware of developments in higher education because libraries are a crucial part of any college or institution. The information industry is now flourishing. Due to financial limitations, no library can purchase all of the most recent scholarly publications. Without open access tools, many studies may be kept a secret from researchers and students, which would affect the institution's overall reputation for academic brilliance and research quality. When learning, teaching, and conducting research, it will be simpler for individuals to

cooperate and exchange materials on a single platform if open access initiatives are given priority. When creating collection-building policies, academic librarians should give open access items first consideration.

OA resources benefit the whole collection in a variety of ways. Both consumers and libraries would be losing out on a wealth of material that is currently available if open access sources were not taken into consideration when developing collections. Although OA resource practices are still relatively new in Bangladesh, librarians must take the lead in putting OA policy into practice when establishing collections. It is crucial to cultivate in librarians a favorable attitude towards open access materials. The policy on collection development with open access should be covered in the LIS curriculum so that future librarians have a solid understanding of the subject even before they begin working in libraries.

The inclusion of open access resources in the entire collection will be most advantageous to the students. They will be able to explore and access with ease as they won't have to deal with the hassle of a necessary purchase or access card. Students and other users should be knowledgeable of OA's guiding concepts to utilize them effectively. There should be various conferences, seminars, and events on the subject of open access to persuade library users to have a favorable attitude toward the subject and push their libraries to incorporate more OA materials. If open access resources are included in the total collection, students will gain the most. They will be able to investigate and gain entry without difficulty as they won't need to cope with the inconvenience of a prerequisite purchase or access permit. Students and other users should be familiar with the fundamentals of OA to utilize it successfully.

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Section-2

3b. Collection development through open access resources: Private academic institutions context

Open Access is a mechanism for remote document access that enables everyone to satisfy their needs without restrictions. For today's academic libraries, the phrase "Open Access" is quite helpful. Since all of the materials are accessible to everyone, even those who are not students at that university may easily visit the website and get the knowledge they need without any restrictions. All of Bangladesh's universities that have established Open Access repositories make the materials produced by their faculties or faculty members available. As a result, they are becoming more well-known, and more people are aware of what they do and how they do it. In particular, university libraries' collections of open access resources have been the focus of this paper's examination. For this reason, six private institutions in Bangladesh that are regarded as the forerunners of OA resources in Bangladeshi academic libraries have been used as samples.

Some authors struggled to explain "Open Access" clearly since they didn't understand how to approach the topic. Some of them confused an open repository with the idea of open access. The literature research provided us with several precise definitions, including:

By "Open Access" to this literature, we mean its free accessibility on the public internet, allowing any users to read, download, copy, distribute, print, link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other legal purpose, without facing any financial, legal, or technical obstacles aside from those inherent in gaining access to the internet itself. Giving authors control over the integrity of their work and the right to be properly credited and referenced should be the only restriction on copying and dissemination, as well as the sole purpose of copyright in this field. ([Budapest Open Access Initiative, 2001](#))

"Open Access" is the practice of making copyrighted content available for fair use (non-commercial, educational) and making public domain items freely available for use without any limitations. ([Effie Kapsalis, 2016](#))

From these perspectives, we can conclude that open access is anything that, soon, may build a new platform in knowledge by making all papers accessible anywhere, accessible to everyone without any bonds, limitations, or conditions, and able to share or download the materials.

The International Federation of Library Associations and Institutions (IFLA) states that "acquisition and collection development focus on methodological and topical themes about the acquisition of print and other analog library materials (by purchase, exchange, gift, and legal deposit), as well as the licensing and purchase of electronic information resources."

The majority of collection development is just a technical activity carried out by the librarian or other employees. This procedure involves gathering data on the users' requirements and providing them with complete assistance from the library. It is obvious from the definition above that OA has developed a platform that disobeys all types of limitations.

The heart of the library is collection development, which is an active activity. The key benefits of collection creation through open access (OA) include the expansion of cooperation and increased public involvement, as well as the free or occasionally reduced cost of collection acquisition. This study's main goal is to highlight the significance of freely available resources to the collection growth at six private Bangladeshi libraries. The effect of open access materials on collection development at university libraries in Bangladesh is also investigated in this article. Additionally, it makes an effort to concentrate on how students and the academic community are currently using Open Access materials.

Data from six private institutions in Bangladesh were surveyed as a key component of the study's data collection process. Additionally, meetings with the most significant individuals in those libraries were held to look at the current state of their open access repositories, and how they are used, and to attempt to understand the library policies around utilizing OA materials both before and after. Another phase was getting assistance from numerous internet resources, including blogs, Google, academic publications, and Google Scholars.

3b.1 Contribution of open access materials in collection development of six selected private universities in Bangladesh:

In a relatively short amount of time, the idea of open access has gained popularity all around the world. Like many other nations, Bangladesh has started to support open access. The librarian is responsible for building the collection for the library, which is a constantly growing

infrastructure. Despite this, due to inadequate funding, librarians always strive to build their collections and acquire enough information resources for both current and future users. By enabling librarians to handle the steady stream of new and updated collections, open access can help them keep up with shifting information trends. The absence of considerable usage of open-access materials by library professionals in Bangladesh is the reason why the library resources are out of date.

Public universities are crucial to the prosperity and growth of any nation, but they haven't done much to expand the use of open access in their libraries. Similarly, to this, most private universities in Bangladesh have not yet started to suggest open access to resources. During the time of data collection, six of them seemed to have had little exposure to OA. Many basic issues persist although some private universities have adopted open access in their libraries to increase their holdings via the Internet. This situation raises many issues that merit more debate and research. Additionally, they still lack the necessary knowledge to appropriately expand their library collection through OA. They haven't changed their collection development policy since embracing Open Access. Additionally, some librarians feel differently about this.

The oldest and most renowned private universities in Bangladesh are North South University (NSU), BRAC University (BRAC U), Independent University Bangladesh (IUB), Daffodil International University (DIU), Eastern University (EU), and International University of Business Agriculture and Technology (IUBAT). Except for IUBAT, these libraries offer a wide range of user-focused services, appropriate collections, and institutional repositories. As a result, they serve as samples in this research project.

Table 3.2: The number of reading materials of the selected private universities:

University	Traditional Resources	E-resources	Institutional Repository	Open Access Resources	Considering OA resources in the library collection
BRAC U	47,196	20,074	YES	Yes	No
DIU	57,206	51,322	YES	Yes	No
EU	19,534	53,000	YES	Yes	No
IUB	70,781	20,146	YES	Yes	No
IUBAT	14,751	11,000	YES	Yes	No
NSU	55,638	152,527	YES	Yes	No

Statistics on printed and digital resources from six private university libraries are shown in Table 1.2. Each of the six institutions has access to institutional repositories and open access materials. Most of the time, OA resources significantly improve the value of their repositories. As a result, users are aware of open-access content when utilizing the repository. The library does not, however, count open access resources as a part of its whole collection. As a result, the majority of university students are not aware that their library includes materials that are available to the public. Libraries also still choose conventional materials over open-access ones.

The combined open access materials from any of these libraries wouldn't amount to more than a tenth of their entire holdings. It implies that while some universities have taken an effort to embrace open access, the majority of libraries build their collections in a traditional manner and via purchases. Students, researchers, and faculty members who participated in the study asserted that obstacles are brought on by ignorance, a misunderstanding of open access, the technical proficiency of library staff, the indifference of library administration, and a communication gap with the established libraries.

We questioned 700 students (MPhil/Masters level) via a survey, asking them, "Does your library hold enough OA Resources?" 444 of the 700 students that were questioned provided feedback. 60% of students claimed their library had enough OA resources, compared to only 40% who believed their library did. Furthermore, we found that just 50% of students routinely utilize OA materials, 20% of students have no clue what it is, and 30% are aware of the notion but have never used it. In addition, we looked at 409 professors at those twelve universities. Here, we discovered that while 20% of faculty members from different disciplines held conflicting viewpoints, 80% of them believed that their libraries lacked enough open access literature.

3b.2 BRAC University (BRAC U):

The Ayesha Abed Library at BRAC University strives to develop into a top knowledge resource center using 21st-century technological advancements, providing cutting-edge new services and a greater collection of books and materials to the teaching, learning, and research communities. They actively participate in "Open Access Week" and take part in other open access-related events. For this study, we gave the questionnaire to 28 BRAC University participants. They were mostly made up of women, with only eighteen men. We tasked the

students with analyzing the open access components of their local library. In terms of "free availability," over 60% of students said there was an adequate amount of freely available information. Approximately one-third of students thought the resources were up to date. A majority of students—nearly half—agreed that other key things were not well related. Only around 10% of individuals surveyed thought the resources covered their field of study or research. 18% of the students made sure that the supplies were quickly retrieved. Less than 30% of students were satisfied overall with their education.

List of the number of the resources of BRAC U library:

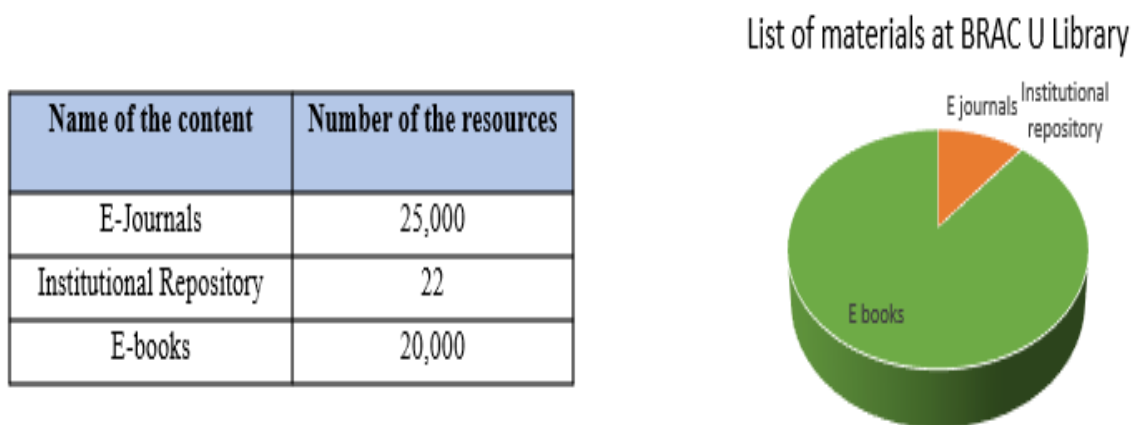


Figure 3.7: List of materials at BRAC U Library

3b.3 Daffodil International University (DIU):

With the blessing of the UGC and the Bangladeshi Ministry of Education, DIU was founded in 2002. It is the first organization in Bangladesh to sign the UN's Commitment to Sustainable Higher Education Institutions. The DIU library's goal is to support learning and research. There were 40 participants from DIU, including 14 female and 26 male individuals. Less than half of the students responded that there were enough freely available pieces of information when it came to "free availability." Approximately 25% of the pupils thought the resources were up to date. Nearly 55% of students believed that additional relevant things were not well related. Only around 10% of individuals surveyed thought the resources covered their field of study or research. The retrieval time was rated as unacceptable by 45% of all responders. Less than 15% of students reported overall satisfaction with their education.

List of the number of the resources in DIU library:

Name of the content	Total number of the content
Books	24,000
E-journals	25,000
E-books	26,000
E-magazines	322
Audio-visual materials	1900

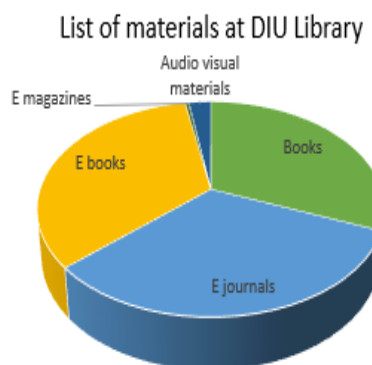


Figure 3.8: List of materials at DIU Library

3b.4 Eastern University (EU):

Since its foundation in 2003, Eastern University has been aiming to create a modern well-equipped library. The library strives to employ modern methods and technology to offer complete materials and services to meet the needs of the university community in terms of research, instruction, and learning. There were 13 participants from DIU, with 7 of them men and 6 of them women. When asked about "free availability," almost 60% of students said that there was enough publicly available content. Less than 20% of respondents thought the resources were current. Less than 20% of the students thought the connections between extra-pertinent subjects were adequate. More than 45% of students made sure the readings didn't touch on their area of study or research. 18% of the kids made sure the supplies were swiftly recovered. Less than 30% of students were overall pleased.

List of the number of resources of the EU library:

Name of the content	Number of the resources
Books	15,000
Journals, reports & thesis papers	2,300
Audio-visuals	700
E- books	3,000
E-journal	25,000

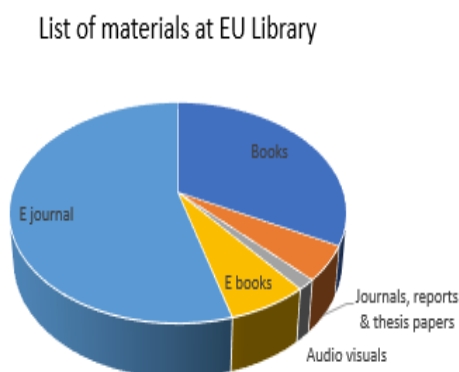


Figure 3.9: List of materials at EU Library

3b.5 Independent University of Bangladesh (IUB)

One of Bangladesh's oldest private universities, Independent University was established in 1993. Here, academic excellence is a tradition, teaching is a passion, and lifelong learning is a habit. The library was founded by Dr A Majeed Khan, the founding president, and president emeritus of Independent University, who also donated 160 books to the collection. By offering access to extensive materials and resources in both physical and digital contexts, the library seeks to foster intellectual curiosity and support the University's learning, teaching, and research. We looked at 31 IUB students, 23 of them were men and the remaining eight were women. In terms of "free availability," over 63% of students felt there was an adequate amount of freely available information. Only about 6% of students thought the resources were up to date. A little under 45% of students thought that the additional relevant things were not properly related. Only around 18% of those questioned thought the resources covered their field of study or research. 17% of students made sure that the supplies were quickly retrieved. 47% of students expressed satisfaction with the entire experience.

List of the number of resources of the IUB library:

Name of the content	Number of contents
Printed books	24,924
Audio-Visual materials	2617
Online periodicals	146
E-Journals	20,000

List of materials at IUB Library

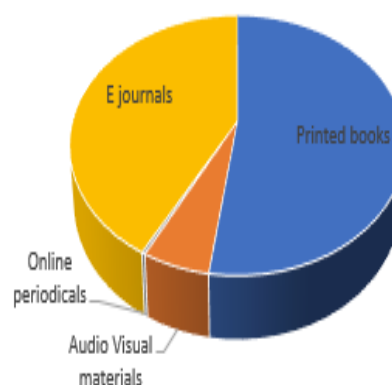


Figure 3.10: List of materials at IUB Library

3b.6 International University of Business Agriculture and Technology (IUBAT):

The oldest private university library in Bangladesh, IUBAT Library, is automated by KOHA. The University's teaching and research initiatives are aided by the print and online holdings of the IUBAT Library. IUBAT Library's collection consists of books, CDs, DVDs, journals, magazines, practicum reports, IUBAT publications, periodicals, newspapers, maps, prints, documents, microform, cassettes, videotapes, Blu-ray Discs, e-books, audiobooks, databases,

and other materials. There were 23 participants from IUBAT in all, 11 of them men and 12 of them women. Around 54% and 24% of students, respectively, expressed satisfaction with "Free availability" and "Coverage of my study/research." Less than 16% of students said that in any manner, OA resources were current. Resources that provide linkages to other resources and quick retrieval received lower satisfaction ratings than 97 and 93 per cent, respectively. There was less than 5% total satisfaction.

List of the number of resources in the IUBAT library:

Name of the content	Number of contents
Printed Resources	33,000
E-books	5,000
E-Journals	6,000

List of materials at IUBAT Library

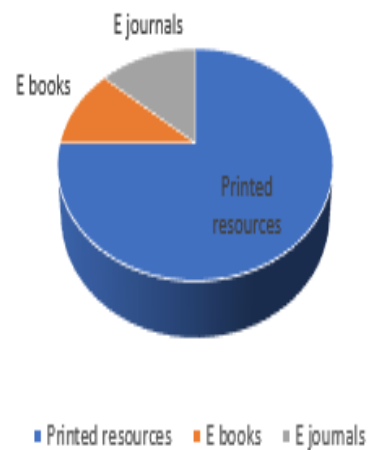


Figure 3.11: List of materials at IUBAT Library

3b.7 North South University (NSU):

The North South University (NSU) Library was established in 1992 and has grown to be one of Bangladesh's top universities. By offering a variety of scholarly resources, facilities, and services to professors, staff, and students in the discovery, use, creation, and administration of information, the North South University Library supports the research, teaching, and learning needs of the North South University community. 33 NSU students took part in this study. There were 25 males and 8 women among them. Less than 20% of students were overall pleased, on average. Nearly all students expressed dissatisfaction with the "free availability" and "coverage of my research/study" difficulties. About 23% of the pupils made sure the data was up to date. The satisfaction rating for the 'Quick Retrieve' category was a little over 35%.

List of the number of resources of the NSU library:

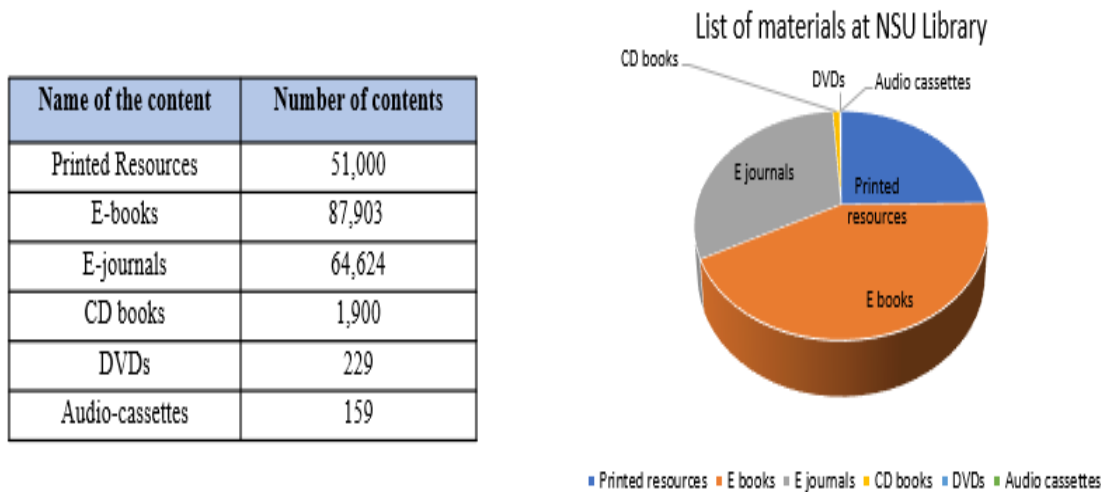


Figure 3.12: List of materials at NSU Library

3b.8 Discussion:

The study looked at the usage and knowledge of open access materials in the growth of library collections: a case study of six private institutions. The idea of OA resources is understood by a sizable portion of participants. Even though the vast majority of responders lack much experience, they nonetheless read open journals, essays, books, etc. However, open-access materials are not part of the overall collection in any of the six libraries, and there is no way to search the OA resources online. Some institutional repositories have a few open access materials. The library authorities assert that even while they do not fully supply open access resources on their platforms, if a user requests an OA resource, they will provide it. This indicates that the librarians do not view open access resources as a crucial component of their holdings. As a result, not only are the users denied the enormous advantages of OA resources, but the resources are also unable to make a substantial contribution to collection development.

The use of open-access materials is underutilized while creating library collections. While the librarians and other staff members of these libraries have a sound theoretical grasp of open access, we have found that they lack the practical skills required to implement the policy. Furthermore, they do not consider open-access materials to be a sizable component of their total collection. It was found that only when users want them should open access materials be made available. The other half of library officials feel open access resources should only be made available when customers demand them. As a result, library patrons' underuse and

underuse a great quantity of knowledge that is freely available. According to the data, libraries will be able to build substantial collections despite having a limited budget if they focus more on including a sufficient number of open access resources and specific platforms to access them. Users will be able to explore and use a sizable body of knowledge. As a consequence, both users and faculty would be more satisfied.

3b.9 Recommendations and Conclusion

The goal of the OA policy is to provide its community with carefully designed material to help people access knowledge. The selection policy must take into account the wants and demands of the community as well as the space and money that are available. Prioritizing open access options will enable study, teaching, and research as well as collaboration and resource sharing on a single platform. As we all know, there are several benefits to using open access materials, including:

- Increase the use of open-source software.
- Decrease the necessity for enhancing physical space.
- Share facilitates resources within the consortia.
- Introduce the reader to electronic media by using the software.
- Meet the preservation goal of static access.
- Benefit anyone with some qualities like flexibility, freedom, security, and accountability.
- Increase the number of users of these materials.
- Acquire more content by avoiding duplication of print and electronic.

Users and libraries will lose out on such benefits if OA resources aren't used in collection creation. Although open access collection building in Bangladeshi libraries is a relatively new practice, librarians should be more careful when it comes to OA policy. In the context of OA application in the library, the mindset of library professionals is crucial. By hosting seminars and conferences on the OA application in the library and offering training, library workers' attitudes and abilities may be favorably strengthened. The growth of the library collection will be ensured by qualified specialists who have a favorable attitude towards open access materials. So that users may fully utilize them and so that the overall number of open access materials in the library can be determined, the OA resources should be organized and presented on library websites. Collaboration with OA in the creation of library collections should be permitted for library professionals. For future library professionals to have clear notions even before

beginning their professions, the policy addressing collection creation with the aid of open access should be included in the LIS curriculum.

The most significant activity for any user in academic libraries is OA browsing. For this reason, there ought to be plenty of OA resources in the library. It is recommended to spend more time engaging in OA-related activities. To educate the public about OA, seminars, and conferences should be organized at least once a year. The library should be well-stocked with expanding open access materials in the internet age to ensure that all operations run smoothly and that users get used to the library's more extensive resources. More online journals published by the top publisher in the world should be included since journals are the most useful items in the OA collection. The significance of knowledge training must be made clear to students and educators. One of the most recent trends in Bangladeshi libraries is the usage of open access materials in the collection. However, it's encouraging that students, librarians, and the academic community are becoming more familiar with open access materials. Hopefully, everyone engaged will be mindful of their obligations and act appropriately to put the OA resource policy on the growth of library collections into practice during the next several days.

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Chapter 4

The level of understanding of Open Access Resources amongst student and faculty members in academic institutions of Bangladesh

Section-1

4a. Level of understanding of Open Access Resources amongst students in academic institutions in Bangladesh

Section-2

4b. Level of understanding of Open Access Resources amongst faculty members in academic institutions in Bangladesh

Section-I

4a. Level of understanding of Open Access Resources amongst students in academic institutions in Bangladesh

The growth of the Internet and other technologies has had a huge impact on communication in academia. It is now much simpler to find necessary articles online and use them for research, teaching, and other reasons. The paywall, though, is now the research approach's main obstacle. The bulk of scholarly materials that are accessible online need subscriptions, making them difficult to access. The idea of Open Access (OA) began to gain popularity in the final part of the 20th century as a solution to this issue. The development of contemporary technology gives this idea a more attainable shape. Open Access (OA) is fairly prevalent and popular in different forms and techniques in the West, but in Bangladesh, the idea has just recently begun to gain popularity among academics.

OA is essential to research and development because it makes information, services, and solutions accessible and simple to use. It is generally accepted that open access advances academic communities' accessibility, usefulness, production, and long-term viability. (Pinfield,2007; Gardner,2013).

Several authors misdefine the word because they are unaware of the best way to think about open access. Some of them misinterpreted the concept of open access and an open repository. This research yields a few reliable definitions, including:

Open Access (OA) literature is available digitally online for no cost and is generally unrestricted by copyright and licensing laws. It is made feasible via the internet and the author's or copyright holder's permission. (Suber, 2012).

By "open access" in this research, we refer to its unrestricted availability on the internet, which enables anyone to read, download, duplicate, distribute, print, browse, or link to the full text of these publications, save them for indexing, pass them as data to systems, or use them for any other lawful purpose, all without having to overcome any financial, legal, or technical obstacles aside from those that are inextricably linked to obtaining internet access. Allowing authors control over the integrity of their work and the capacity to be properly acknowledged and

referenced should be the only constraint on replication and distribution, as well as the sole goal of copyright in this domain ([Budapest Open Access Initiative, 2001](#)).

"Open access" is characterized as making copyrighted content available for fair use, which is defined as the non-commercial, educational, and unrestricted use of public domain resources. ([Effie Kapsalis, 2016](#))

From these perspectives, we can conclude that Open Access is a method for developing a knowledge-based platform by assuring the fair use of the documents and making them all accessible from everywhere. Anyone may access the papers without any boundaries, limits, or requirements.

The primary goal of the study is to examine how open access materials contribute to the field and how students see them. The study's goals are to:

- Investigate the overall scenario of Open Access resources in selected Universities in Bangladesh
- Measure the degree of knowledge students have about open access resources in Bangladeshi academic institutions.
- Identify the obstacles to increasing the availability of Open Access resources in academic institutions.

Examining the current situation of Open Access (OA) Resources in a sample of six private and six public institutions in Bangladesh is the aim of this study. It also aims to examine students' familiarity with, use of, and attitudes toward open access materials.

4a.1 Result and online survey:

The research design has incorporated both qualitative and quantitative approaches.

A total of 444 out of the 700 (Response rate 63.43%) students from 6 public and 6 private universities respondents to the online and direct survey through structured questionnaires. The data of student respondents are given in Table -1.

Table 4.1: Number of Student respondents

SI	Name of the Government Academic Institutions	Total number of students ((MPhil/ Masters level)	No. of Dept.	No of respondents	Average (%)
01	University of Dhaka (DU)	7766	83	72	0.92
02	University of Rajshahi (RU)	4447	59	81	1.82
03	Bangladesh Agricultural University (BAU)	2023	46	38	1.87
04	Bangladesh University of Engineering and Technology. (BUET)	1414	18	29	2.05
05	University of Chittagong. (CU)	3827	48	25	0.65
06	Jahangirnagar University (JU)	4272	34	31	0.72
07	North South University (NSU)	3059	15	33	1.07
08	International University of Business Agriculture and Technology (IUBAT)	5038	35	23	0.45
09	Independent University of Bangladesh (IUB)	810	20	31	3.82
10	BRAC University (BRAC U)	1870	07	28	1.49
11	Daffodil International University (DIU)	1146	22	40	3.49
12	Eastern University (EU)	248	05	13	5.24

Total Respondents:444

According to the Annual Report of UGC (University Grant Commission) 2019, about 2,62,562 students are studying at different levels of different disciplines in these selected 12 universities. The highest number of participants are from RU (81), followed by DU (72), DIU (40), BAU (38), NSU (33), JU (31), IUB (31), BUET (29), BRAC University (28), CU (25), IUBAT (23), and EU (13). In the case of percentages, the highest percentage is shown by EU (5.24%), and the lowest is shown by IUBAT (0.45%). The rest are DU (0.92%), RU (1.82%), BUET (2.05%), CU (0.65%), NSU (1.07%), JU (0.72%), IUB (3.82%), BRAC University (1.49%), DIU (3.49%), and BAU (1.87%). (Table 1)

Among 444 participants, the total number of male and female participants is 298 and 146, which accounts for around 67% and 33% respectively. The gender distribution of student respondents is shown in Table -2:

Table 4.2: Gender distribution of the respondents

Gender	DU		RU		BAU		BUET		CU		JU		NSU		IUBAT		IUB		BRACU		DIU		EU		Total	
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
Male	59	81.95	52	64.20	19	51.35	18	62.07	15	60.00	24	77.42	25	75.76	11	47.83	23	74.19	18	64.29	26	65.00	07	53.85	298	67.11
Female	13	18.06	29	35.80	18	48.65	11	37.93	10	40.00	07	22.58	08	24.24	12	52.17	08	25.81	10	35.72	14	35.00	06	46.15	146	32.88
Total	72		81		37		29		25		31		33		23		31		28		40		13		444	

By engaging participants of both genders, an attempt to reduce gender biases to the minimum level is taken. The number of male respondents is the highest (59) in DU whereas the number is lowest (07) in the EU. Regarding percentage, the DU male consists of the highest one, and the IUBAT male participants consist of the lowest one (81.945% and 47.826% respectively). Conversely, the number of female participants is highest in RU (29) while the lowest is in EU (06). Nevertheless, the percentage of highest female participants is in IUBAT (52.174%) whereas the lowest is in DU (18.056%). However, the gender differences among the students showed that there was no significant difference between the opinions of male and female respondents on overall satisfaction with the OA resources of their universities.

In this research, we asked students, “Does your library hold enough OA Resources?” In reply, among the participants, 40% replied that they have enough OA resources, and 60% of students told they do not have sufficient OA resources in their library [Figure 3.1]. Along with this, we discovered 20% replied they do not have any idea, 30% are familiar with the concept but never used it and 50% of students use OA resources very frequently [Figure 3.2].

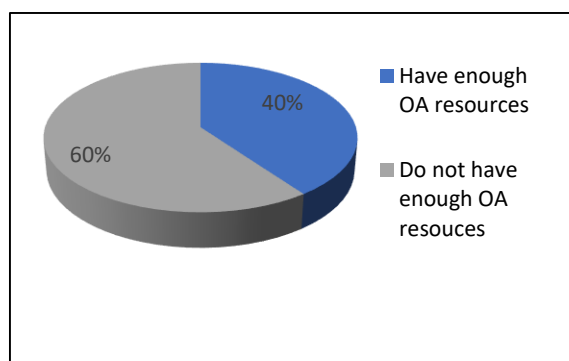


Figure 4.1: Students' perception on OA collections of their libraries

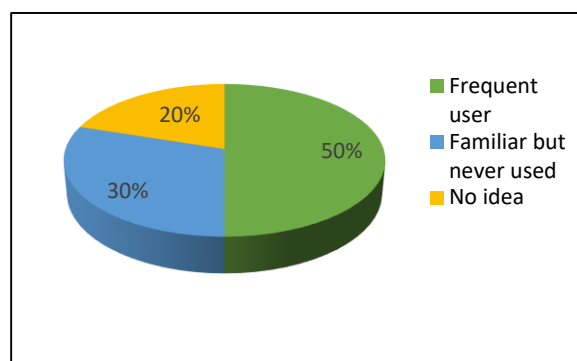


Figure 4.2: Frequency of students' OA resources usage

Overall, the most popular OA resource is OA Journal. The OA journal category consists of the highest number of users (37.752%), followed by OA thesis (23.787%), OA Book (16.332%), OA Database (13.610%), and OA Data (8.521%) [Shown at Table -3.3].

Table 4.3: Types of OA resources used (Multiple Responses)

OA Types	DU	RU	BAU	BUET	CU	JU	NSU	IUBAT	IUB	BRAC U	DIU	EU	Total	Percentage
OA Journal	47	51	13	21	19	21	29	18	30	25	35	10	319	37.75%
OA Book	14	22	09	11	07	12	13	07	10	14	13	06	138	16.33%
OA Thesis	25	29	17	19	13	17	15	11	13	19	16	07	201	23.79%
OA Data	8	10	05	11	07	03	06	01	07	08	05	01	72	8.52%
OA Database	17	14	05	10	09	12	12	03	09	13	09	02	115	13.61%
Total	111	126	49	72	55	65	75	40	69	79	78	26	845	

Only a small percentage of those surveyed said they used OA data (8.521%). In the case of the OA journal, the highest number of participants is from RU (51) and the lowest number is from EU (10). Regarding the OA thesis, the highest number of users are from RU (29) and the least number is from EU (07). Only in two universities, does the number of OA data users reach two-digit figures; namely- RU (10) and BUET (11) whereas in IUBAT and EU, the number of OA data users is only one. In the case of OA Book, the highest number of users are from RU (22), on the other hand, the lowest amount is from IUBAT and EU, 07 and 06 respectively. About OA Database, the highest number of users are from DU (17) and the lowest number is from EU (02).

Table 4.4: Mean (SD) of students' satisfaction with OA resources in their research

Users' opinion	DU		RU		BAU		BUET		CU		JU		NSU		IUBAT		IUB		BRAC U		DIU		EU	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Free availability	3.17	14.92	3.16	14.39	3.17	8.81	3.10	7.37	3.35	6.14	3.57	8.70	3.57	10.5	3.38	7.24	3.71	7.60	3.81	9.08	3.55	7.04	3.50	6.74
Up to date information	2.35	11.38	1.91	8.849	2.13	5.70	3.26	8.16	1.88	3.96	3.00	8.40	2.53	9.68	2.30	4.80	2.05	3.87	2.86	7.01	2.80	7.12	2.40	4.29
Resources that show the links to other resources	2.39	11.38	3.49	12.33	3.10	9.40	3.47	9.63	3.41	7.96	3.09	6.72	2.80	7.99	2.92	5.09	3.71	7.66	3.72	7.20	3.33	9.02	2.90	4.30
The coverage of my research/ study	2.36	11.48	2.19	10.86	2.37	8.33	2.05	5.09	2.24	5.41	2.87	7.23	2.20	7.45	2.15	4.83	2.58	4.63	2.59	6.81	2.40	5.41	2.10	3.98
Quick retrieve	2.24	11.24	2.95	12.70	2.17	7.22	2.73	5.80	3.00	5.33	2.39	6.39	3.20	8.27	2.61	6.28	2.82	1.65	2.36	4.95	2.90	7.03	2.60	5.16
Overall Satisfaction	3.30	14.39	2.13	11.22	2.24	8.50	3.37	9.07	2.24	5.37	2.04	5.51	2.96	9.78	2.07	5.10	3.47	1.62	3.00	7.54	2.55	5.99	2.20	5.30
n	63		43		29		19		17		23		30		13		17		22		20		10	

Students from 12 institutions were asked to rate how satisfied they were with OA resources on a five-point Likert scale from 1 (lowest) to 5 (highest). **Table 4** shows the mean and the standard deviation (SD) of students' opinions for each questionnaire item. It is observed that the lowest score of 'free availability' is in BUET (3.10) whereas the highest is in BRAC U. (3.81). Nonetheless, it is to be noticed that universities such as DIU, IUB, BRAC U., DU, EU, and IUB have their own institutional repositories, which result in good scores in terms of 'free availability'. In all universities, except BUET (3.26) and JU (3.00), the 'up to date information' score is below 3. The websites of JU and BUET have the latest resources focusing on OA, which has an impact on the score. On the evaluation of 'Resources that show the links to other resources', the highest score is from BRAC U. (3.72) and IUB (3.71) and the lowest is from IUBAT (2.31). The simple and clear navigation to other resource links on library websites is a catalyst in this category. Regarding 'the coverage of my research/study', except JU (2.87), IUB (2.58), and BRAC University (2.59); all universities are below 2.5 ratings. Focusing on user demands has a positive impact on the scores of those mentioned three universities. In the case of 'Quick retrieve', the highest rating is from NSU (3.20) and the lowest is from BAU (2.17). The 'overall satisfaction' is highest in IUB (3.47) and the lowest is in JU (2.04). The information literacy rate, awareness of the students, and such factors have an impact individually in the case of both universities. Nevertheless, the overall satisfaction rate indicates that libraries should be more concerned about user requirements in terms of OA resources.

The students also recognized the primary barriers to using OA materials. Some major obstacles are the limited number of titles available, difficulty to find a relevant document, unavailability of desired information, and the problem with predatory sources (**Shown in Table 5**).

Table 4.5: Problems/constraints in using OA resources

Problems in using OA Resources	DU		RU		BAU		BUET		CU		JU		NSU		IBAT		IUB		BRAC U		DIU		EU		Total	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Limited number of titles available	10	15.88	9	20.93	11	37.93	02	10.52	03	17.65	06	26.09	09	30.00	03	23.08	04	23.53	03	13.64	03	15.00	03	30.00	66	21.43
Difficult to find relevant document	21	33.33	12	27.91	02	6.89	05	26.31	02	11.77	02	8.69	03	10.00	01	7.69	01	5.88	03	13.64	03	15.00	01	10.00	56	18.18
Unavailability of desired information	13	20.64	05	11.63	03	10.35	02	10.52	05	29.41	04	17.39	08	26.67	04	30.76	04	23.53	06	27.28	05	25.00	02	20.00	61	19.81
Problem with predatory Sources	19	30.16	17	39.54	13	44.83	10	52.63	07	41.18	11	47.83	10	33.34	05	38.46	08	47.06	10	45.46	09	45.00	04	40.00	123	39.93
n	63		43		29		19		17		23		30		13		17		22		20		10		308	

The participants were asked about the constraints faced to access OA resources. About 40% have faced a problem with predatory sources whereas almost 22% identified limitations of available titles. Around 18% to 19% stated having difficulties in both cases finding relevant documents and unavailability of desired information. However, some factors such as adequate awareness, limitation of proper guidelines, limited activities on open access resources, and so on act as a catalyst for the opinion of the participants on obstacles to using OA resources in these universities.

From the observation, it can be assessed that the satisfaction level regarding the 'limited number of titles available' can be increased by including more OA resources in the OA databases. To alleviate the difficulty of relevant and desired documents, both the objectives of the institution and the user requirements should be considered. In the meantime, the authenticity of the sources should be checked with credibility-checking tools to prevent predatory sources.

4a.2 Discussion and Recommendations:

This study's findings suggest that instead of subscription-based publications, open access resources are becoming more and more popular. A staggering number of fresh pieces of information are published daily in a variety of mediums in the age of the information explosion. Due to this, it is challenging for librarians and information officers to subscribe to and keep track of all available information sources. Open access resources might be a useful and practical solution to get beyond this obstacle. The introduction and popularization of OA among students is a crucial obligation of librarians and information officers.

However, the degrees of satisfaction varied, mostly because the students' information needs and levels of interest differed. However, it is concerning that neither one of the six public nor one of the six private universities completed "needs assessments" before implementing open access resources at their schools. The students used OA resources to locate a small number of titles that were pertinent and desirable. Furthermore, the issue with predatory sources is a significant one. However, both students and the library authority's information literacy were largely to blame for the barriers to utilizing open access materials. The study also revealed that there was a need to strengthen the services and resources related to OA.

To increase student awareness, frequent seminars, conferences, and webinars should be held. To explore and use OA materials, computers with fast internet connections are required.

Finding pertinent and wanted papers on library websites might be challenging for many students. To enable adequate access, the libraries should provide links to all accessible OA materials on their websites. The connections should be clear and easy. To encourage and expedite the use of OA materials, stakeholders including students, librarians, and the academic community should come together to form an appropriate guideline and policy.

This study makes an effort to summarize the current situation and look into the level of OA comprehension among Bangladeshi students in a few academic libraries. OA resources are known to the responders. A sizable portion of participants read and use freely available books, papers, articles, journals, etc. However, several barriers are preventing users from broadly using the advantages, including the libraries' indifference, the availability of competent personnel, the lack of suitable equipment, a lack of information literacy, and others. The majority of respondents even said that open access (OA) was a great addition to any academic library in the present day and that libraries should encourage their patrons to use OA materials. Information retrieval instructions for the students should center on open access.

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Section-2

4b. Level of understanding on Open Access Resources amongst faculty members in academic institutions of Bangladesh

We need constant access to knowledge since we live in a society with advanced technologies. Particularly, the availability of scientific formulas, research findings, and expert information should be made universal. However, this is not the case in reality. Typically, the publishers, not the authors, are the owners of the rights to the papers in their journals. There is a fee required for everyone who wishes to read the articles or use the data. The information cannot be used consistently by academics, students, or taxpayers without the publisher's authorization, which is frequently charged for. The idea of Open Access (OA) became more well-known in the second half of the 20th century as a solution to this problem. Returning to the fundamental purpose of study and research—to advance and improve society—is made possible through open access. The development of contemporary technology has made this idea more attainable. By providing immediate and unfettered access to the most recent research, we may accelerate discovery and create a more equitable system of knowledge.

There are several meanings of "open access", and the concept is always evolving. From the literature research, the following true definitions were discovered:

"By 'Open Access,' we imply its free accessibility on the internet, allowing any users to read, retrieve, copy, disseminate, print, search, or link to the full-text of these articles, borrow them for data processing, transmit them as data to the application, or use those for any other legitimate reason, with no financial, legal, or technical barriers other than those indistinguishable from obtaining internet access itself." ([Berlin Declaration, 2022](#))

Open Access refers to the freedom to fully utilize research publications in a digital setting as well as their instant, free internet availability. Open Access ensures that the findings are accessible to everybody, enabling discoveries to enhance people's lives and ideas to grow into successful enterprises. ([Open Access - SPARC, 2022](#))

Open Access resources are free, online, digital, and not subject to copyright or license restrictions. It is made possible by the internet and the author's or copyright holder's collaboration. ([Suber, 2012](#))

We may infer from the previous justification that Open Access is a strategy for developing a new knowledge-based platform where research data is accessible to all users, not only subscribers or content buyers.

This study's main objective is to assess the influence of open access resources and academics' opinions on them. The purpose of the study is to:

- To look at the overall state of Open Access materials in a few Bangladeshi institutions from the viewpoint of the academic community.
- To gauge the degree of understanding of open access resources among university professors in Bangladesh.
- To identify any barriers to the expansion of open access items in academic libraries.

Open access (OA) encourages more information sharing, lowers barriers to access, and allows researchers more options for promoting their work and building a solid reputation. OA may spur innovation and build a fairer knowledge system for everybody by granting rapid and unlimited access to the most recent research. This study aims to examine faculty members' attitudes, understanding, and usage of open access materials in Bangladesh's public and private institutions. Additionally, this study examines the barriers to OA in universities from the perspective of the faculty. The essay concludes by recommending that all parties involved, including university libraries, faculty members, and stakeholders, work together to promote the open access movement for both their benefit and the prosperity of the whole country.

4b.1 Result and online survey:

The online and direct study, which used structured questionnaires, received responses from 409 faculty members from six public and private universities, for a response rate of 63.43%. The replies from the faculty members are displayed in Table -1.

Table 4.6: Number of faculty respondents

SI	Name of the Government Academic Institutions	Total number of faculty (Professor)	No. of Dept.	No of respondents	Percentage (%)
01	University of Dhaka (DU)	841	83	87	10.34
02	University of Rajshahi (RU)	601	59	56	9.31
03	Bangladesh Agricultural University (BAU)	321	46	34	10.59
04	Bangladesh University of Engineering and Technology. (BUET)	243	18	19	7.81
05	The University of Chittagong. (CU)	334	48	31	9.28
06	Jahangirnagar University (JU)	285	34	41	14.43
07	North South University (NSU)	57	15	21	36.84
08	International University of Business Agriculture and Technology (IUBAT)	46	35	15	32.60
09	Independent University of Bangladesh. (IUB)	106	20	23	21.69
10	BRAC University (BRAC U)	104	07	29	27.88
11	Daffodil International University (DIU)	36	22	36	100
12	Eastern University (EU)	17	05	17	100

According to the Annual Report of UGC (University Grant Commission) 2020, about 9828 faculties are involved in teaching at different levels of different disciplines in those selected 12 universities. The highest number of participants are from DU (87) and followed by RU (56), JU (41), DIU (36), BAU (34), CU (31), BRAC U (29), IUB (23), NSU (21), BUET (19), EU (17), and IUBAT (15). In the case of percentages, the highest percentage is shown by the EU (11.19%), and the lowest is shown by CU (2.41%). The rest are BAU (5.75%), JU (5.42%), DIU (5.20%), IUBAT (5.16%), RU (5.11%), IUB (4.39%), BRAC U (4.00%), DU (3.59%), NSU (3.32%) and BUET (2.89%).

Among 409 participants, the total number of male and female participants are individually 317 and 92, which accounts for around 77.50% and 22.49% respectively. The gender distribution of student respondents is shown in Table -2.

Table 4.7: Gender distribution of respondents

Gender	DU		RU		BAU		BUET		CU		JU		NSU		IUBAT		IUB		BRACU		DIU		EU		Total	
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
Male	71	81.60	46	82.14	29	85.29	16	84.21	18	58.06	31	75.60	11	52.38	14	93.33	22	75.86	21	91.30	24	66.66	14	82.35	317	77.50
Female	16	18.39	10	17.85	05	14.70	03	15.78	13	41.93	10	24.39	10	47.61	01	6.66	07	24.13	02	8.69	12	33.33	03	17.64	92	22.49
Total	87		56		34		19		31		41		21		15		23		29		36		17		409	

In DU, the number of male responses is the largest (71) while in NSU, it is the lowest (11). The BAU male participants have the greatest proportion, while the NSU male participants have the lowest (85.29 percent and 52.38 percent respectively). In contrast, the number of female participants is largest in DU (16) and lowest in IUBAT (01). Nonetheless, NSU (47.61 percent) has the greatest percentage of female participation, while IUBAT has the lowest (6.66 percent). By involving participants of both genders, an endeavor is made to remove gender prejudices to the bare minimum. However, gender inequalities among academics revealed that there was no substantial variation in overall satisfaction with OA resources at their institutions between male and female respondents.

We questioned the experts in this study, "Does your library hold adequate OA Resources?" In response, 43 percent of participants said their library has adequate OA resources, while the remaining 57 percent said their library does not have enough OA resources. [Figure 3.3]. Furthermore, we observed that 30% of scholars have no clue about OA resources, 30% are acquainted with the concept but have never used it, and 40% of scholars utilize OA resources often [Figure 3.4].

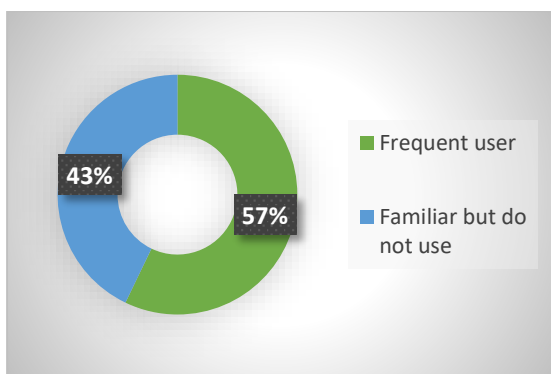


Figure 4.3: Faculties' perception of OA collections in their libraries

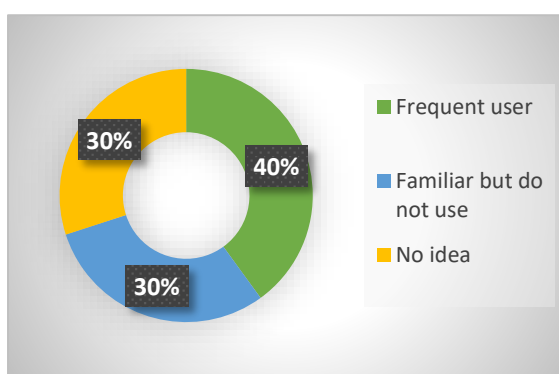


Figure 4.4: Frequency of faculties' OA resources usage

OA Journal is the most popular OA resource overall. The most users (36.39%) were in the OA journal category, followed by OA thesis (23.05%), OA Database (19.28%), OA Book (12.00%), and OA Data (09.30%). [Shown in the Table -3.8].

Table 4.8: Types of OA resources used (Multiple Responses)

OA Types	DU	RU	BAU	BUET	CU	JU	NSU	IUBAT	IUB	BRAC U	DIU	EU	Total	Percentage
OA Journal	47	31	13	14	19	22	19	11	23	26	29	16	270	36.39%
OA Book	14	12	09	06	07	06	08	02	06	08	08	03	89	12.00%
OA Thesis	21	13	10	11	21	15	11	05	17	19	15	13	171	23.05%
OA Data	8	07	06	05	06	03	03	05	05	10	08	03	69	09.30%
OA Database	17	09	11	12	09	13	17	06	11	21	09	08	143	19.28%

Only a diminutive percentage of people acknowledged using OA data (09.30%). In the case of the open-access journal, DU (47) has the highest involvement, while IUBAT has the lowest (11). In regards to the OA thesis, DU (21) and CU (21) have the most, while IUBAT has the fewest (05). Only one university, BRAC U (10), has a two-digit quantity of OA data consumers, while JU, NSU, and EU have the fewest. In the context of the OA Book, most users come from DU (14), whereas the fewest come from IUBAT (02). BRAC U has the most users (21) in the OA Database, while IUBAT has the fewest (06).

Table 4.9: Mean (SD) of faculty members' satisfaction with OA resources

Users' opinion	DU		RU		BAU		BUET		CU		JU		NSU		IUBAT		IUB		BRAC U		DIU		EU	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Free availability	03.60	17.64	03.75	15.59	02.86	07.41	03.79	07.79	02.52	07.83	03.64	13.08	03.86	08.80	03.33	04.99	03.70	09.64	04.14	12.40	03.92	12.81	03.82	07.86
Up to date information	03.29	17.22	03.83	15.86	02.77	07.80	03.53	06.70	02.65	07.29	03.00	10.18	04.34	11.69	03.47	05.93	03.48	09.13	04.52	16.34	03.14	09.95	03.53	06.67
Resources that show the links to other resources	02.88	13.39	03.52	13.30	02.74	08.95	03.69	08.06	02.71	07.34	03.05	11.74	03.34	07.53	02.93	04.81	02.74	06.01	03.97	11.23	03.14	09.44	03.12	05.49
The coverage of my research/ study	03.36	16.36	03.45	13.36	02.74	06.84	03.53	07.38	03.13	09.44	02.88	09.38	03.77	09.38	03.27	05.16	03.09	06.80	03.28	07.72	04.00	13.17	03.35	07.15
Quick retrieve	03.34	16.67	03.52	12.94	02.56	16.61	03.95	09.40	02.91	08.73	03.22	11.47	03.67	08.80	04.07	09.71	04.00	09.94	04.14	12.50	03.83	11.93	04.18	09.09
Overall Satisfaction	03.54	18.99	03.18	12.06	01.77	06.86	04.43	11.78	01.65	05.03	03.15	11.70	04.10	09.89	03.6	06.27	03.96	09.93	04.31	14.01	03.31	08.96	03.59	06.43
n	87		56		34		19		31		41		21		15		23		29		36		17	

The academic communities at 12 universities were asked to rank their comfort with OA resources on a five-point Likert scale, with 1 being the "lowest" and 5 being the "highest." [Table 3.9] displays the mean and standard deviation (SD) for every survey question. CU has the least 'free availability' score (2.52), whereas BRAC U has the highest (4.14). Except for CU (2.65) and BAU, all colleges have an 'up to date information' score greater than 3. (2.77). The most recent OA materials may be available on the webpages of BRAC U (4.52) and NSU (4.34), which may have an impact on the score. BRAC U has the top rating for 'Resources that display connections to other resources,' while CU has the lowest (2.71). The easy and visible access to extra resource linkages on library websites is an accelerator in this field. Except for BAU (2.74) and JU (2.88), all institutes received ratings of 3.00 or higher for 'the covering of my research/study.' Putting the requirements of the users first may have a positive impact on the ratings of the institutions offered. When it comes to 'Quick retrieval,' EU gets the greatest score (4.18), while BAU has the least (2.56). Overall satisfaction is highest at BUET (4.43), followed by BRAC U (4.31) and NSU (4.10), and lowest at BAU (1.77) and CU (1.65). Information literacy rates, faculty knowledge and understanding, and other variables may all have an impact on both universities. Nonetheless, the total satisfaction rate shows that libraries should focus more on user demands when it comes to open access items.

The participants were asked about their difficulties in acquiring access to open-access resources. One of the most serious concerns is the limited number of titles available, the difficulty in discovering a relevant document, the absence of required information, the lack of a fixed interface for OA browsing, and the problem with predatory sources. (Shown in Table 5).

Table 4.10: The problems/ constraints in using OA Resources

Problems in using OA Resources	DU		RU		BAU		BUET		CU		JU		NSU		IBAT		IUB		BU		DIU		EU		Total	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Limited number of titles available	10	15.88	9	20.93	11	37.93	02	10.52	03	17.65	06	26.09	09	30.00	03	23.08	04	23.53	03	13.64	03	15.00	03	30.00	66	21.429
Difficult to find relevant document	21	33.33	12	27.91	02	6.89	05	26.31	02	11.77	02	8.69	03	10.00	01	7.69	01	5.88	03	13.64	03	15.00	01	10.00	56	18.182
Unavailability of desired information	13	20.64	05	11.63	03	10.35	02	10.52	05	29.41	04	17.39	08	26.67	04	30.76	04	23.53	06	27.28	05	25.00	02	20.00	61	19.806
Problem with predatory Sources	19	30.16	17	39.54	13	44.83	10	52.63	07	41.18	11	47.83	10	33.34	05	38.46	08	47.06	10	45.46	09	45.00	04	40.00	123	39.935
n	63		43		29		19		17		23		30		13		17		22		20		10		308	

Approximately 40% of respondents reported concerns with predatory sources, while approximately 22% reported limits on the titles available. Around 18% to 19% had difficulty locating relevant papers and obtaining the information they need. Several elements, however, such as a lack of awareness, insufficient rules, and little engagement in open access resources, may play a pivotal role in the participants' views of barriers to obtaining OA resources in these establishments.

Based on the findings, it is possible to conclude that raising satisfaction with the 'limited number of titles available' may be accomplished by including new OA items in OA databases. Both the institution's aims and the user's demands should be considered to make it simpler to access relevant and requested content. Meanwhile, to avoid fraudulent sources, the sources' validity should be checked using credibility-checking tools.

4b.2 Discussion and Recommendations:

In this age of information explosion, many fresh bits of information are published every day from various sources. As a result, it becomes difficult for librarians and information officers to subscribe to and keep track of all the available information sources. Open-access resources could be a helpful and realistic option to get beyond this roadblock. Introducing and promoting open access among students and faculty members is a crucial task for librarians and information officers. However, because of the faculty members' varying levels of interest and information needs, satisfaction ratings varied. In terms of open access resources, it is troubling that public institutions lag behind more than private universities. Since Bangladesh currently lacks smart and creative decision-making institutions, public universities should be the leaders in this area.

Not to mention, private university libraries are doing their part to inform users about open access materials by organizing webinars and symposiums, as well as sponsoring Open Access Week events. Additionally, public university libraries need to do more to inform users about open access resources. Many students, faculty members, researchers, and other library users will be aware of and more inclined to use them if public institutions make their libraries OA resource-friendly.

The purpose of this study is to examine the degree of academic community understanding of open access in Bangladesh's university libraries. The respondents are aware of open access resources, and a sizeable portion of them look for and use free books, papers, journals, and other resources. However, many obstacles stop users from fully using the benefits, such as library apathy, a lack of knowledgeable information workers, inadequate resources (both reading materials and technology), a lack of understanding of information literacy, and so on. Predatory sources are another issue connected to OA that has to be addressed seriously. The research says that resources and services need to be enhanced. Regularly scheduled lectures, conferences, and webinars should be held to increase awareness among academics. On library websites, many users have trouble locating the requested and pertinent materials; this is a problem that librarians should solve as soon as feasible. To ensure adequate access, libraries should post links to all accessible OA materials on their websites. The links should be clear and simple to understand. To promote and expedite the use of open-access resources, students, librarians, and academics should work together to create a robust policy and set of standards. The majority of respondents agree that open access is a great addition to any contemporary academic library and that libraries should promote the usage of open-access resources among their patrons. Open access should be stressed when directing students, teachers, and other academic community members in the retrieval of materials.

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Chapter 5

Strategies for encouraging the promotion of open access in Bangladesh

Information accessibility and consumption are impacted by financial considerations like buying, subscribing, etc. With the advent of open access systems, this topic has been gradually changing since information wants to be free (Brand, 1987). To develop the open access movement internationally, academics from universities, researchers from institutions, and employees from institutions have all collaborated. Initially viewed as a threat to the development of scholarly publishing methods, the open access movement is now viewed favorably by academic scholars, libraries, library directors, and institutions (Nosakhere & Abdelwahid, 2014). Due to their impact factors and inclusion in several databases, such as Web of Science and Scopus, open access journals have become more and more popular in recent years.

"Open access" refers to unrestricted online access that allows anyone to read, download, copy, distribute, print, link to, or use the full texts of these articles for any other legitimate purpose, free from any financial, legal, or technical restrictions outside of those imposed by simply being able to access the internet. Suber (2012) describes open access (OA) literature as being "digital, online, free of charge, and free of most copyright and licensing restrictions". The removal of obstacles to the publication of research findings is the goal of open access (OA).

The collection of links to open access journals, according to Agrawal (2014), showed that almost every discipline had an open access publication. Instead of asking customers to pay for several subscriptions to publications, the library might offer open access articles that are available online. Open access journals provide various benefits that benefit academic institutions, businesses, the general public, and research funders, according to Shidi, Nwachukwu, and Ode (2020). Improved author visibility, readership, and impact are only a few benefits. Others include increased academic institution rivalry and the capacity to meet institution rating requirements. Increased interaction with the results of funded research and the promotion of the creation of novel ideas, products, and services are two further positive benefits. By making vast volumes of information resources available to researchers throughout the world, it has boosted research activity. These journals were compiled using several open access journal directories, including DOAJ (Directory of Open Access Journals), Open-J-Gate, and Public Library of Science. Open access (OA) can improve accessibility, repeatability, and the quality of research (Clayson et al., 2021; Piwowar et al., 2018). Countries and academic institutions from all across the world have vowed to openly share their research output while putting up a distinct OA strategy (Moskovkin et al., 2021). The World Health Organization's

Health Inter-Network Access to Research Initiative (HINARI), the Food and Agriculture Organization's AGORA, the United Nations Environment Program's OARE projects, INASP's AuthorAID, Journals Online, and Publishers for Development (Pfd), among other organizations, are also supported by a sizeable number of electronic academic publishers. These initiatives help a lot of developing and low-income countries by giving them access to educational resources for free or at a minimal cost.

According to recent studies, Web of Science (WoS) is close to indexing 50% of open access (OA) articles, with 42.9% of WoS publications being OA between 2015 and 2019 (Basson et al. 2022). When OA's merits are discussed, lower-income nations are sometimes cited as case studies to illustrate its benefits (and dangers). There has already been discussion over whether lower-income countries would suffer as a result of losing their ability to publish in journals as a result of the switch in publication costs from subscription fees to author payments (Budzinski et al. 2020; Nature, 2022). Bangladesh has always been a competitor in the fight to improve its higher education and academic exchange.

Open access is a concept that has acquired some momentum in the academic world. There have been several examinations of open access resources. However, a study of the literature shows that the majority of the work has concentrated on theoretical issues such as OA trends, effect, awareness, user perception, academics' desire to publish in open access journals, and the advantages and disadvantages of doing so. The practical issues, such as how to adopt, promote, and use OA material in academic contexts, have not received significant research. One of the major objectives of this study is to offer some strategies for the effective adoption of OA resources at a few top Bangladeshi institutions. The creation of open access repositories at other academic institutions will benefit greatly from these techniques and recommendations.

Since open access is crucial to the expansion of scientific research and development, academics are especially concerned about the issue. Using open access materials can make it simpler for academic institutions to develop thorough library collections. This study looked at the topic of what sort of promotion strategy may be employed in academic institutions, with a focus on a small number of Bangladeshi universities.

In research design, both qualitative and quantitative approaches have been applied. To assure appropriateness from both public and private universities and to study how Open Access Resources are utilized and perceived, 12 academic institutions—6 government-run and 6

private—in Bangladesh were carefully chosen. The academic institutions were picked after considering their founding years, library resources, and favorable rating of UGC. Based on how frequently students from the sample universities used libraries for information requirements, those students were chosen. 1014 people submitted their completed surveys, which were counted and reviewed (Questions are included in the Appendix).

For this study, a total of 1014 respondents were surveyed. To collect data from all parties involved, the questionnaire was given out to students, academic staff from esteemed Bangladeshi institutions, librarians from various public, government, academic, and private Bangladeshi libraries, prominent funders, policymakers, publishers, and stakeholders.

Table 5.1: Gender distribution of the participants

Sl. No.	A sampling of the participants		Frequency (N)	Percentage (%)	Total Number
1.	Students	Male	223	50.22	444
		Female	221	49.77	
2.	Faculty members	Male	196	47.92	409
		Female	213	52.07	
3.	Library professionals	Male	51	75.00	68
		Female	17	25.00	
4.	Funders, Policymakers, Publishers, and Stakeholders	Male	72	77.41	93
		Female	21	22.58	
Total					1014

We questioned scholars and library professionals about potential obstacles to implementing open access policies. The replies were rather equally distributed, which gave some indication of the importance of each choice. Lack of coordination among librarians and scholars was named as the main barrier to the adoption of OA policies by 29.78% (N=302) of the respondents, followed by existing copyright restrictions at 21.89% (N=222), 20.11% (N=204) by "Misconceptions about open access," 16.46% (N=167) by "Lack of policy guidelines," and 11.37% (N=119) by "Lack of reliability." (Figure 5.1)

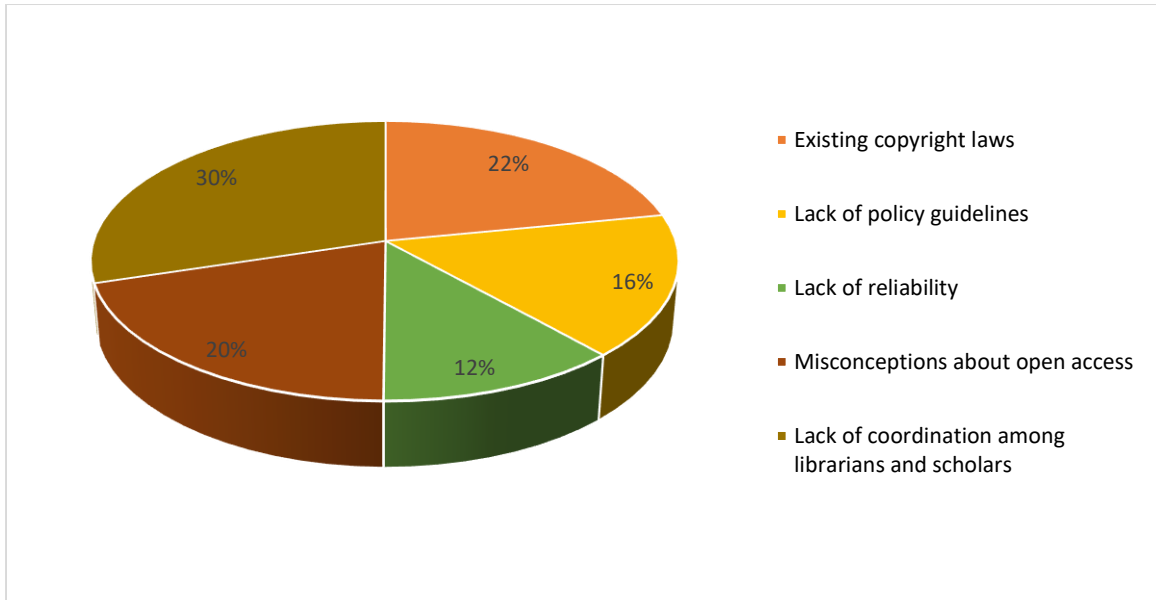


Figure 5.1: Barriers to OA Policy

The researcher looked at the reasons for library professionals' ignorance of the open access issue. A startling 35.30% (N=358) of the participants cited "Lack of open access campaign" as the reason for their ignorance of open access, followed by 30.57% (N=310) "Having a vague idea of the term," 11.24% (N=114) "Having no idea how it might impact publishing/funding," 11.04% (N=112) "Never feeling the urgency," 8.48% (N=86) "Lack of interest," and 3.35% (N=34) "Never hearing about it from researchers" (**Figure 5.2**)

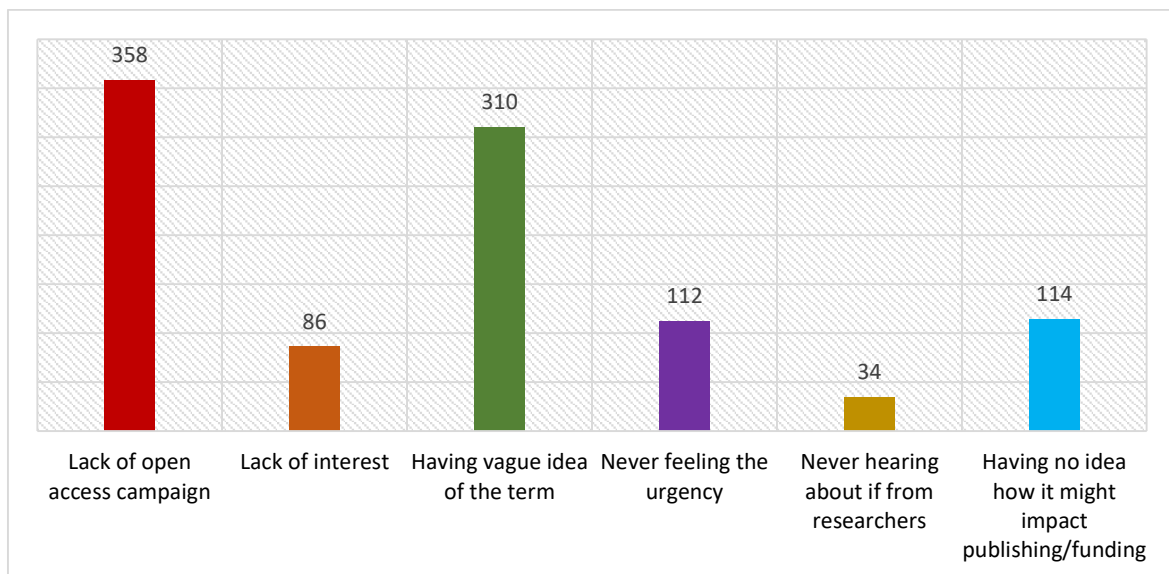


Figure 5.2: Reasons for ignorance of open access

The authors looked at why libraries didn't keep OARs (Open Access Resources) up to date in their repositories. As the primary reason they were unable to maintain OARs in their

institutions, 29.88% (N=303) of the respondents cited "Librarian's insufficient knowledge about OARs," 21.89% (N=222) cited "Users not being interested in OARs," 20.80% (N=211) stated "Lack of institutional cooperation," 18.63% (N=189) stated "Poor availability of OARs," and 8.77% (N=89) cited "Poor infrastructure" (**Figure 5.3**)

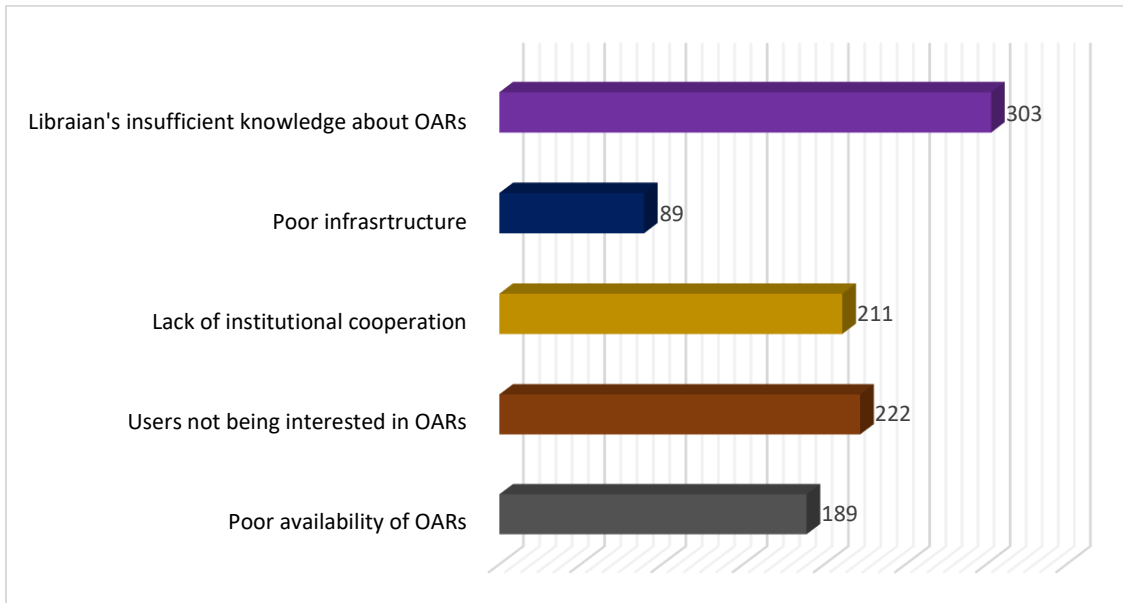


Figure 5.3: Reasons libraries fail to preserve OARs

We questioned faculty and students about any issues they had using open access materials. 42.30% (N=429) of the participants reported that it was difficult to find relevant documents, 14.89% (N=151) that the materials did not maintain proper standards, 29.48% (N=299) that there were a limited number of titles, and 13.31% (N=135) that the documents and procedures did not adhere to a standard. (**Figure 5.4**)

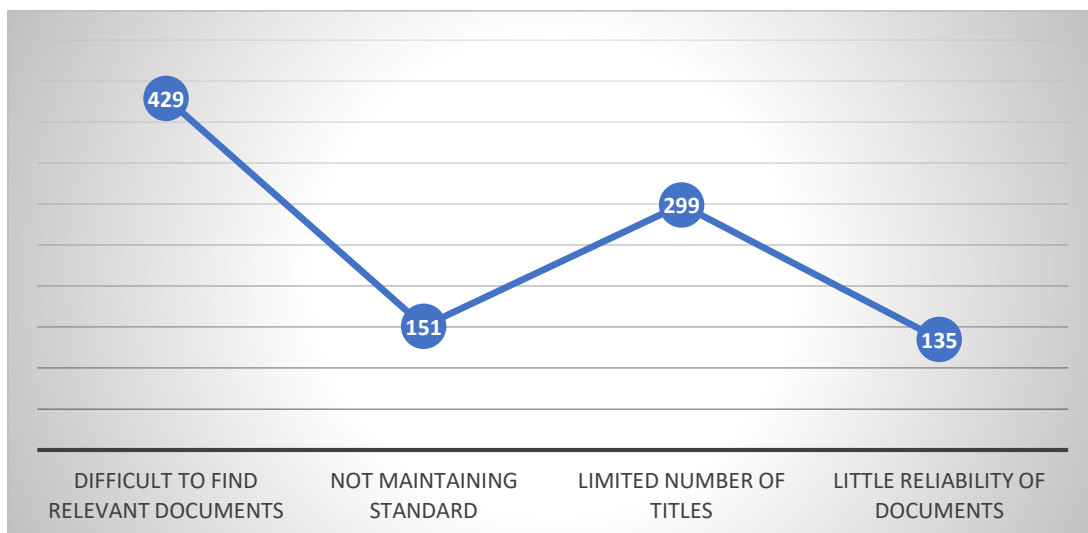


Figure 5.4: Problems users face while using OARs

5.1 OA promotion strategy

The author posed many questions to the participants during the research and, after carefully analyzing the information he had, came to the conclusion that special techniques were needed to promote open access at academic institutions. As a result, the author offers many strategies for the effective adoption of open access in Bangladeshi academic institutions:

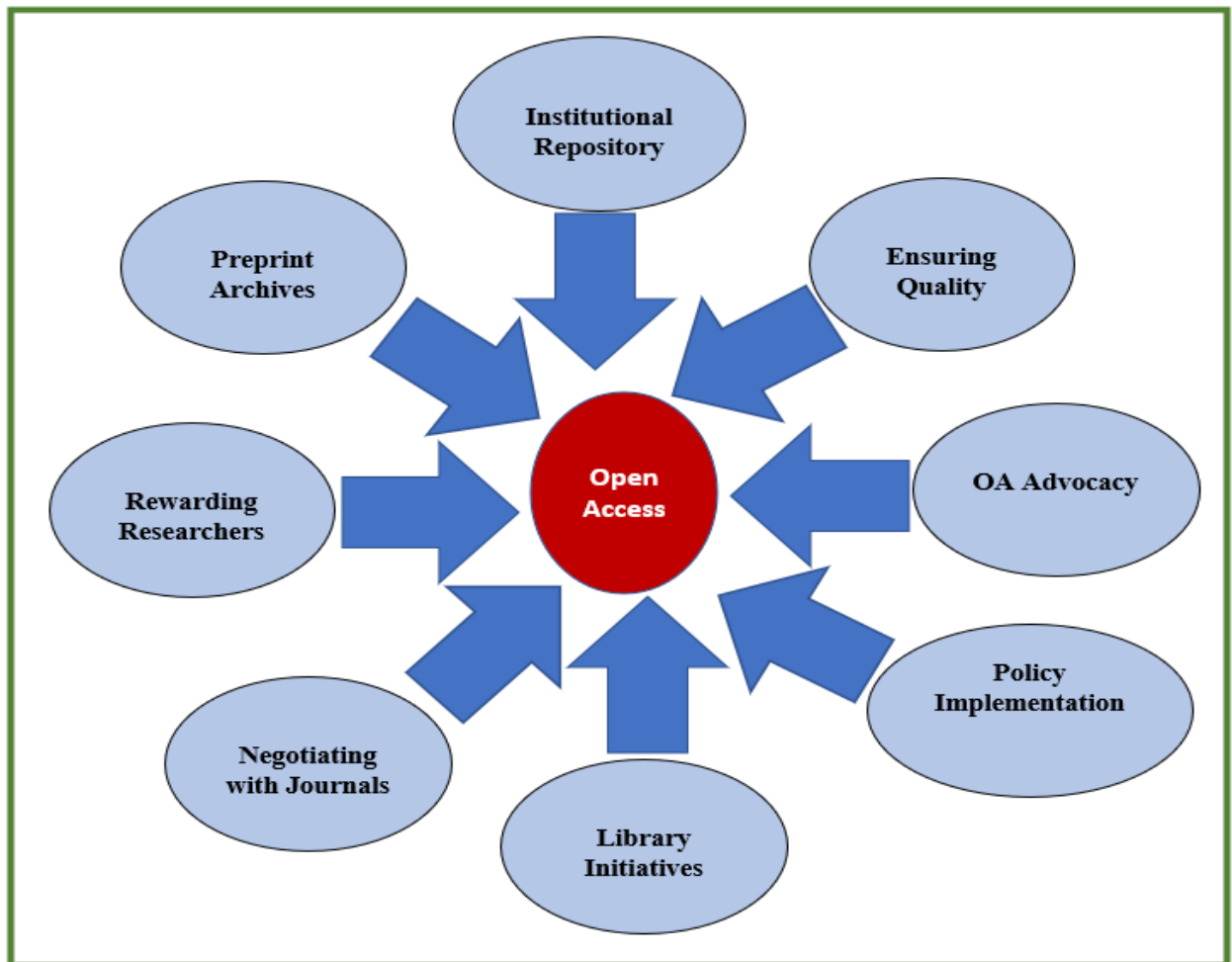


Figure 5.5: OA promotion strategy

1. Effective policy implementation: There is little doubt that the adoption of policies by significant research funders, universities, and other institutions has raised awareness of Open Access and accelerated its growth. Policies encourage interest, encourage action, and further the goals of something by acting as role models for others. Based on the quantity of Open Access content they generate and how well they adhere to Open Access principles, Open Access policies will be judged on their efficacy over the long run. Libraries must also be able to purchase open access publications, and this requires a clear policy. Building an effective OA collection is difficult without the right resource acquisition.

2. Policy controlling body: The development and implementation of the policy will be overseen by a controlling body. The body will also be in charge of assessing the policy's practical efficacy and determining whether revisions are necessary. The head of the library will be responsible for this task and will have the support of academics who support this methodology.

3. Removing the fear of transitioning to OA: Librarians occasionally struggle with OA, which usually reduces the demand for library services. To allay concerns about the changes that the conversion to OA may bring about, the idea of open access may be promoted. Making a strong argument for open access to decision-makers, funders, and research managers can help with this.

4. Launching institutional repositories and open access journals: To finish this phase, a web-based network of repositories and collections of open access articles must be created. Funding must also go to organizations that promote open access, create and enforce technological standards, and offer technical answers to urgent problems. Before Open Access is completely realized, the infrastructure required to offer genuine interoperability and global access must be in place.

5. Stronger action by universities and research funders: By utilizing membership fees from academic organizations, this approach aims to boost publisher incentives for rigorous peer review while also assisting in lowering the price of journal subscriptions. A different choice may be to prevent grantees from publishing findings in non-open access publications for the fear of perhaps losing their eligibility for future financing.

6. Establishing an institutional preprint archive: The COVID-19 pandemic has boosted the incentives to "publish" preprints (manuscripts not yet submitted to peer review) to fast distribute knowledge that can aid in the outbreak's management. A text and data institutional open access, OAI-compliant e-print archive may now be launched. Growing dependence on preprint publication and self-archiving would only be beneficial in the context of rigorous peer review.

7. Negotiated agreements: By taking active action, universities, other research institutions, and research funders may thwart the most privileged (and powerful) publishers' present attempts to "negotiate" significant price rises for journal subscriptions.

8. Appointing the library as the leading provider of open access care: The library will take the lead in putting an open access policy into practice once it has been created. To encourage open access, their institution's librarians can take the lead. It is the responsibility of national governments and university administrations, not only library specialists, to promote open access (OA) and establish a managed policy.

9. Increasing Journal Impact Factor (IF): Researchers are judged by the journals they publish in because of their high IFs. Despite libraries' best efforts, researchers do not frequently publish their work in institutional repositories and open publications. They desire to publish in a high IF publication since it will help their CV (curriculum vitae), which depends on articles for advancement. One of the primary reasons why academics decide against publishing in open access journals is the fact that most of them have comparatively low impact factors (IFs) for their respective fields. In addition to creating high-impact open access publications, resource initiatives must be made in the areas of digitization, access, and preservation.

10. Institutional consortium: Academic institutions must work together to create an institutional repository. Academic institutions might negotiate more effectively with publishers if they joined together. No institution is able to manage it alone. It could be possible for each institution to band together to form a group that could bargain with publishers. Sharing repository information via email and social media is a fantastic additional tactic to help researchers and academics understand the benefits of Open Access. If a deposit is declared, institutions might choose to inform the residents by getting in touch with them. The best information from the previous week might be compiled and included in a weekly email as an alternative. Posting links to new deposits on social media coupled with a two-line summary and relevant hashtags is another successful tactic. Institutions can choose to use their library's official handle or choose a unique handle exclusively for their repository.

11. Encourage researchers with rewards: Without engaged scholars and researchers, an institutional repository for open access cannot succeed. By establishing monthly and annual rewards for outstanding contributions, institutions may capitalize on people's need for recognition and competitive nature to promote involvement. The library should and should give recognition to those contributors who have received the most downloads, citations, and manuscript submissions, among other things. This allows the repository to be quickly populated.

12. OA-supporting organizations: To lead the charge in furthering the Open Agenda, it is essential to take note of and put into practice the goals and tactics of international Open Access advocacy organizations and consortiums like Scholarly Publishing and Academic Resources Coalition (SPARC) and Creative Commons (CC), Public Library of Science (PLOS), and Open Access Scholarly Publishing Association (OASPA). These activities may be carried out through organizations like Open Access Bangladesh (OAB), Bangladesh Association of Librarians, Information Scientists, and Documentalists (BALID), and Library Association of Bangladesh (LAB).

13. Making copyright identification as easy as we can: Academics and researchers are frequently reluctant to submit their articles to institutional repositories because they are unsure about their copyright rights. Additionally, they don't want to squander their valuable time haggling with the publishers. A copyright detection repository system may be purchased by an organization. The deposit process will include a copyright detection phase. Without fear of legal ramifications, academics or staff members may choose which manuscript versions—post-print, preprint, and published—can be made publicly accessible online.

14. Incorporating OA in all of an institution's operations: To make sure that Open Access is included in the curriculum and institutional activities, the scholarly communication office must collaborate closely with student and faculty liaisons. For example, making it common practice to let people know that all important papers are available from the repository after the event. The best course of action is to encourage students to upload their theses in PDF format to your repository. These actions will eventually assist the institutions in promoting open access and increasing public knowledge of it, making it an important subject of conversation every day.

15. Including eminent academics in open access initiatives: Students and academics don't always agree with constitutional open access laws. There might be several factors, such as a lack of trust or problems with time or interest. This problem may be readily handled by recruiting one or two excellent faculty members from each department to take part in these Open Access projects. Institutions will gain much-needed credibility by working with them since everyone respects them. Word-of-mouth marketing is incredibly effective. To further encourage open access, responses from the researchers should be taken into account.

5.2 Challenges in promoting OA resources

The greatest obstacle to the development of OA is the reluctance of users and librarians to use open access materials. This may be due to inaccurate knowledge about free access. One of the most pervasive myths regarding open access content is that it is of lower quality and receives fewer citations. Another barrier to the adoption of open access is the absence of suitable policy guidelines. Another issue is the lack of institutional repositories at academic institutions. There is nowhere to store the open access content if there is no institutional repository. Another obstacle is institutions' resistance to using and promoting open access content. Another barrier to effective OA adoption is the convoluted licensing processes for the articles. Because of their busy schedules, researchers are unable to negotiate their intellectual property rights with publishers. Collaboration across OA-supporting groups might result in the rapid development of a solution to this problem.

By increasing awareness, it may be possible to reduce additional barriers to research and development in undeveloped nations as well as the lack of information accessibility. By ensuring maximum openness and abiding by the previously established worldwide publication standard, open access journals aim to encourage the dissemination of objective scientific knowledge. Lack of funding for academic libraries is one of the major obstacles to open access. To get started, a lot of prospective open access initiatives will need funding. Academic libraries' financial resources cannot be used to create institutional repositories, Open Access publications, or digital libraries, especially in developing countries like Bangladesh. Because they lack the funds to invest in infrastructure and cutting-edge technology, academic libraries are not very excited about developing Institutional Repositories. It is important to have adequate resources to organize conferences, workshops, study days, seminars, and a variety of other OA-related activities to raise awareness and involve stakeholders.

Other problems include the underpayment of authors and the lack of knowledge about open access journals and other databases. The open access movement faces several technological challenges. It is challenging to build and run institutional repositories that would permit open access to research and publishing due to a lack of pertinent technologies and existing ICT infrastructure. Poor countries, notably Bangladesh, have several challenges when it comes to academic libraries. A few of the issues are unstable power supplies, poor internet penetration, and insufficient bandwidth for downloading and accessing resources. Innovative technology, training for project-involved librarians, computerization of library collections, acquisition and mastery of the chosen software, the development process, a budget, and infrastructure are

required for the creation, maintenance, and administration of sustainable institutional repositories. The repository must be updated by the company that generated it. Resources and experience are both necessary to ensure all of this. The majority of university libraries have trouble switching from print to electronic journal business models. Older print publications must be digitalized, but the requisite infrastructure, techniques, and knowledge are insufficient.

The primary oversight organization for all authorized public, private, and foreign universities in Bangladesh is the UGC (University Grants Commission). Its objective is to ensure the quality of higher education across the country. Even while it offers the institutions it covers crucial financial help, open access policy is not pushed or developed as a result of that funding. Some people might think that this is a waste of money that is really needed. If UGC does not provide clear norms and regulations, universities will have trouble acquiring, protecting, and exchanging open access content. Bangladesh's present copyright and patent laws, which discourage the availability of OA resources, limit the use and expansion of OA resources. The law has to be amended to allow the inclusion of OA material.

5.3 Discussion

It won't be enough to only implement policies at a few institutions. A policy, such as one at the local, national, institutional, and global levels of government, is essential for every academic subject. Open access (OA) rules must be established by each university; however, if the institution is a member of a consortium, it may adhere to a unified policy. Leading academics and OA advocacy groups may collaborate to create an effective national policy. Additionally, with the assistance of all relevant experts, the government may take the lead in establishing legislation. International organizations with a focus on education, such as United Nations Educational, Scientific and Cultural Organization (UNESCO) and International Federation of Library Associations and Institutions (IFLA), may be very helpful in formulating policies with the help of their specialists and in promoting such policies to institutions that are in desperate need of them.

The entire community benefits from knowledge creation. Each academic paper contributes to the field in which it is written. But readers are less engaged by scholarly publications with funding and copyright limitations. For academic research and higher education to be fundamentally sound, it is crucial to use and grasp OAR. The scenario is expected to substantially alter when Bangladesh's ICT infrastructure advances as a result of the repositories. By making research more visible and accessible, open access repositories may improve

usability and idea sharing among academics. If the appropriate institutional authorities support them, open access repositories will surely expand greatly and have a bigger impact on Bangladesh's education, research, and development operations. Without these changes, it seems unlikely that OA will be administered fairly and completely. Despite the advantages of the open access (OA) system for increased visibility and accessibility of scientific articles, Bangladeshi libraries' lack of high-speed, unrestricted internet connectivity has been a major impediment to the system and services. Due to the lack of skilled ICT employees, introducing the OA system has run into severe difficulties. A lack of funding for building internet infrastructure, a lack of experienced workers, a lack of awareness, and other issues are also impeding the spread of OA activities in Bangladesh.

Open access is still not very well-established in Bangladesh. Governmental bodies or other funding organizations do not consistently enforce the open flow of research results. There are very little renowned scientific publications from Bangladesh. As a result, researchers prefer to publish their work in foreign periodicals rather than worrying about the difficulty of making their work open access. To design a strategy and policy for fostering open access to scholarly communication in Bangladesh, academics and librarians may collaborate. They might enhance open access publication by working together. The University Grants Commission (UGC) of Bangladesh may support open access research in Bangladesh. To achieve the ultimate aim of OA, the academic institution should motivate its community and all of its stakeholders to take an active role in producing and consuming OA content. As they gain knowledge, librarians will be better able to adapt to the open access publication environment. Libraries must improve their services if they want academics to fully embrace the OA publishing paradigm. Libraries should provide specialized lectures to educate users on the benefits of open access publishing. Publications with open access should be noted and listed in the databases and catalogs of relevant libraries.

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Chapter 6

Open Access Policy for Academic Institutions of Bangladesh: A Proposed Model

In the world of scientific publications today, open access is a word that is often used. An open-access policy serves as a guide to guarantee that academic papers are widely used. However, this is not a solution that will last. Every academic institution should have an open access policy to address this issue. In this paper, the structure of an open access policy for educational institutions is presented, along with an explanation of how it may operate and what advantages it might have for both academic institutions and the scholarly community.

Every day, several papers in the scholarly world are released, each with importance in a particular field of study. The presence of a paywall, however, prevents faculty members and researchers from accessing many of these articles. However, while the price of educational materials is rising steadily, institutional budgets aren't keeping pace. This unfair ratio places further strain on academic institutions' already tight budgets. The phrase "Open Access" became more well-known in the scientific community in this context.

An open access policy has the benefit of giving authors more control over their works than publishers do. The policy will make it simpler for everyone to access research. Once it is established, it will battle against the price monopoly of a few publishers. Adopting such a policy will support an institution's instructional or research aims.

Institutions will be able to establish institutional repositories thanks to this policy. The academic products of the institution will be collected, preserved, and made accessible through this repository for use and reuse. It will help in indexing and following the scientific work done by the institution. It is possible to plan and finance institutions using the information in this collection. A robust archive would boost the institution's reputation and enhance global cooperation and communication.

Faculty members and researchers will have rapid access to their research results, which will enable them to increase the impact of their work through citations. Additionally, the repository

will guarantee the curation and extensive preservation of their academic output. It will make asking for input from other researchers simple and thus, improve academic communication. Repository profiles can be used by researchers to improve their portfolios.

In cooperation with several IT teams, libraries will manage and offer technical assistance to the institutional repository. The ability to provide its clients with greater access to academic content is one possible advantage of open access policies for libraries. Adopting an open access policy will allow them to give their clients more access to scholarly resources and potentially lower the amount of money libraries spend on traditional journal subscriptions. An open access policy will serve as a guide for the library when it comes to the purchase, preservation, and distribution of resources. It will enable libraries to promote open access while lowering the price of other resources like paid journal subscriptions.

Once the policy is in place, donors will be able to keep an eye on the caliber and transparency of the research they support. The reuse and increased visibility of the research that they support also help donors get a better return on their investment. (Swan, 2012)

Publishers who implement open access can increase the visibility of their publications, make their business models more transparent, be more receptive to new prospects, and concentrate on offering new services with additional value to their community. Additionally, because all internal journals of the institution would be accumulated in the repository as a result of this strategy, it can serve as a protection for them all via preservation and distribution.

6.1 Problem Statement

Open access is a well-known and well-liked word in opposition to a paywall. Academic institutions devote the majority of their budget to resource subscriptions to satisfy the faculties' and researchers' expanding needs for scholarly publications. Developing nations like

Bangladesh are fortunate to have a variety of international academic consortiums, including HINARI, Agora, and OARE, which are rich in resources and were founded by the United Nations and the World Bank. However, these are not long-term fixes. Over time, libraries will have to pay a sizable sum of money to subscribe to these services, placing strain on the meager budgets of university libraries.

On the other side, educational institutions are unable to collect, maintain, and share their intellectual products due to the lack of appropriate rules. There are no set guidelines for research that receives public support in Bangladesh. Faculty members and research students are hence frequently required to buy their required academic work. Making open access policy for academic institutions might be a respectable option in this regard.

Interdisciplinary research is made possible by open access. The policy will make it possible to compute the body of research. Professionals, practitioners, research communities, and the general public with an interest will all gain from it since it will improve the research process. The institutions will be able to provide rapid and open access to their intellectual products by adopting open access policies.

The lack of policy prevents the institutions' intellectual property from being shared on the open access market, depriving the members of our communities of access to open access materials. The purpose of this article is to investigate the requirements, framework, approaches, and challenges associated with the implementation of open access policies. Additionally, it includes some suggestions for good policy implementation. The study's overall objectives are:

- To find out the necessity of open access policy for academic institutions
- To articulate the framework of policy
- To figure out the problems in implementing open access policies

- To explore what the researchers, faculties, librarians, and government can do to implement this policy
- To come up with a recommendation for effective open access policy implementation.

However, it was discovered through the literature analysis that no effort has been made to date to give academic institutions in Bangladesh an open access policy. The first research on establishing an open access policy is this one.

6.2 Methodology

There is no open access policy in place at academic institutions in Bangladesh, public or private. The author analyzed the literature on global and Bangladeshi issues to grasp the advancements in this field of study to develop a strategy for open access. Interviews and surveys were used to obtain input from all parties, including the students, academic communities, library professionals, publishers, legislators, and stakeholders.

Finally, the entire study is carried out by following these procedures of the research model:

- Developing and testing questionnaires
- Gathering data from the sample
- Conducting interviews with responders
- Data collection and analysis

The data were collected by employing structured questionnaires. There were four separate questionnaires created. One was for stakeholders, funders, policymakers, and publishers. Two were for the students and faculty members while one was reserved for library professionals. While understanding the requirement of OA policy from the perspective of the students was the major goal of the student questionnaire, the main goal of the other three questionnaires was

to identify various components of OA policy. Each questionnaire had around eleven questions. Data were gathered between April 25 and June 25, 2020. Additionally, open-ended questions were used to elicit more in-depth ideas.

6.3 The Scopes of Open Access Policy

Over the past ten years, the number of open-access articles has grown significantly (Piwowar et al., 2018), and this trend seems to be holding. A recent prediction states that by 2025, 44% of journal articles will be open access (OA), and OA publications will account for 70% of all articles often used (Piwowar et al., 2019). The primary cause of this enormous increase is policy measures. A wide range of funder policy initiatives have been led by the National Institutes of Health in the United States, the Wellcome Trust and Medical Research Council in the United Kingdom, and the Medical Research Council. Universities like Harvard University, the University of London, the University of Southampton, and others created regional policies and infrastructures that are more widely used.

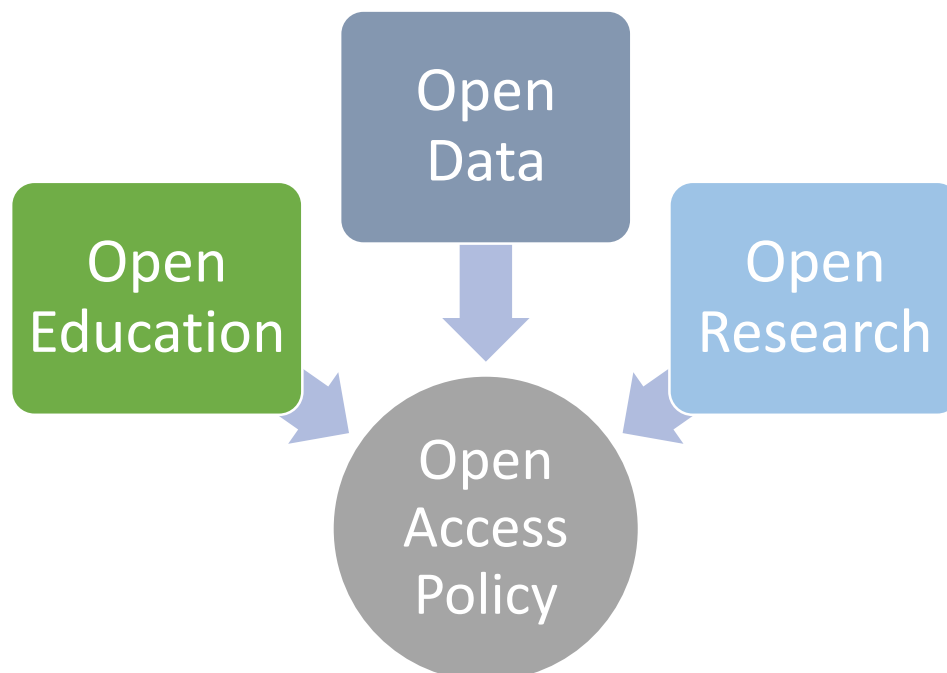


Figure 6.1: Scope of Open Access Policy

The interviews with the library professionals and stakeholders show that no effort has been taken to institutionalize open access policies in developing and emerging countries. In this study, an effort is undertaken to revive open access at academic institutions in Bangladesh. In developed countries, local stakeholders, librarians, and users' views and comments are taken into consideration while implementing the OA policies employed by other organizations. The concept of "open access" encompasses open data, open education, and open research. In this study, an effort is made to create a policy that takes into account all open data, open education, and open research. The goal of the policy is to make academic outputs produced by the institution freely accessible online and to mandate that publicly or privately financed research be published in an open access repository. Additionally, this approach will motivate academics and researchers to maintain ownership of the copyright for their publications.

6.4 Data Analysis

To find out why open access is not recognized or used in academic institutions, a survey was performed. Participants who responded included faculty members, research students, library professionals, stakeholders, and reputable publishers. 43% of respondents said their institutions' lack of an open access mandate is the main cause, while 20% said a lack of knowledge of OA resources is the main challenge. 9 percent of respondents cited a lack of academic or governmental activities on open access projects as the main reason, while 17% agreed that there is inadequate support for OA resources. The remaining 11 percent answered that having a negative attitude is the biggest factor.

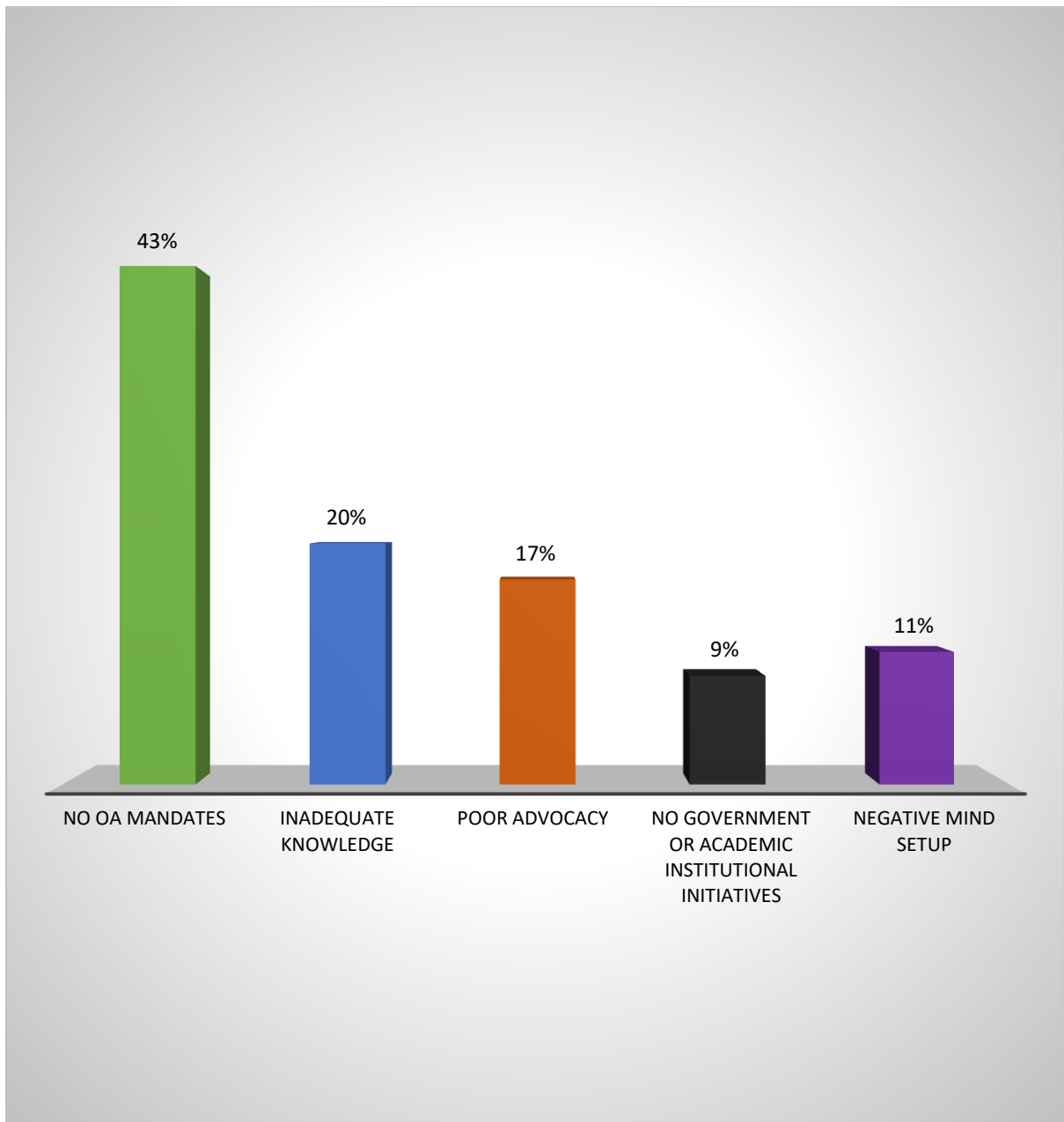


Figure 6.2: Barriers to promoting OA resources

The respondents also discussed ways to raise knowledge of and confidence in OA resources. The introduction of OA policies and guidelines was regarded as the best course of action by 56% of respondents. With 27% of the vote, an awareness campaign came in second, and with 13%, financing for OA infrastructures. The remaining 4% said that creating a "Common consortium" to investigate open-access articles would be good.

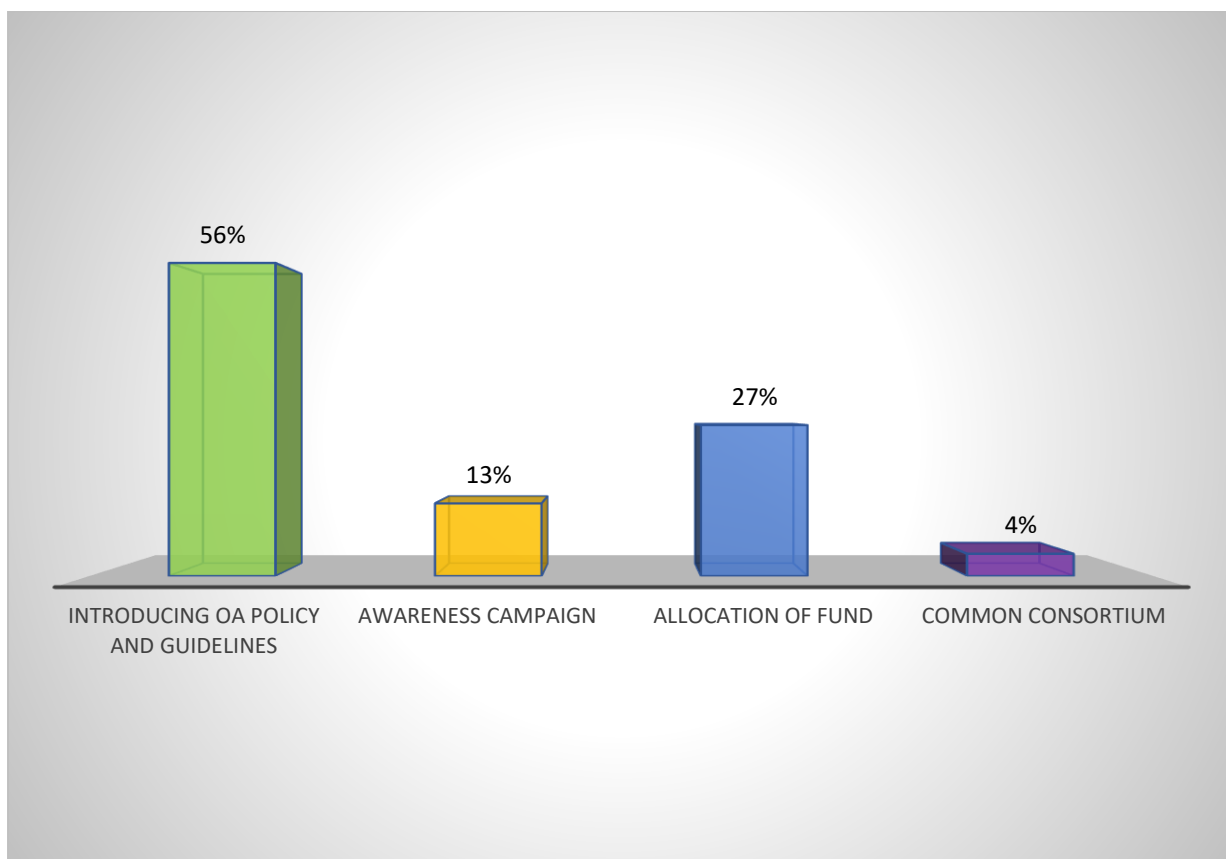


Figure 6.3: Ways to alleviate the barriers

According to 73% of respondents, the OA policy should be clear, unequivocal, and basic in all areas. They also believed that the policy required legal expression and approval by the parent organization of the library's upper management. The majority of the librarians and library personnel who took part in the study agreed that any current patent and copyright laws of Bangladesh, library acquisition rules, and IR regulations should be taken into account by the OA policy.

The survey analysis and participant interviews made it clear that the goal of the OA policy should be to make the institution's intellectual output freely available. When formulating the OA policy, consideration was given to the socioeconomic positions held by the libraries as well as the existing practices and infrastructures. Additionally, the present open access rules in existence at these institutions as well as the behavior of academic library users both then and in the future were taken into consideration. Additionally, the level of user awareness and any

finances previously set out for infrastructure, publication, and procurement were taken into consideration. This OA policy will help the government and academic institutions in their efforts to promote open access. The policy will also defend the author's ownership of the copyright. Not to add, this policy will provide the foundation for the necessary submission of resources supported by the public or the government.

6.5 Proposed OA policy for the academic institutions of Bangladesh

After examining their interviews, it was discovered that neither the Bangladeshi policymakers nor the participating students have a thorough knowledge of the open access policy. We had to take this into account while creating this policy, and we based it on the Harvard-style open access policy because it is the foundation for many institutions in both developing and rich nations. Along with other universities, MIT, Stanford University School of Education, Duke University, and others, Harvard adheres to an open access policy. Aspects and language have been altered or adjusted in light of Bangladesh's economic, social, and cultural traditions. In conclusion, the following open access policy is developed for the academic institution of Bangladesh taking into account the opinions, attitudes, and practices among students, library professionals, librarians, policymakers, the scholarly community, publishers, and worldwide practices of open access policy.

6.6 A policy for the creation and maintenance of intellectual publications of academic institutions in Bangladesh

This policy will be regarded as the institution's open access policy. And only for this institution will this policy be put into effect. The focus of this policy is restricted to the access, data, and educational activities of the institution's students, research scholars, and faculty members. Additionally, this policy will go into effect on the day that the library's parent organization has approved it.

Clause 1: Faculty's Role

Every professor in every department and institute grants permission to (Name of the institution) to make their academic works available and to use their copyright therein. The statement of the Budapest Open Access Initiative will act as a manual for specifying the scope of academic publications. The most popular platforms for presenting these articles are peer-reviewed journals and conference proceedings. However, this clause may also be used with other types of scientific writing, such as books and paid articles, as well as with fiction and poetry written for a general audience and teaching aids like lecture notes, lecture videos, and case studies.

Clause 2: Copyright Reservation

Each faculty member grants the (Name of the institution) a nonexclusive, irrevocable, worldwide license to use any copyright-related rights in each of their scholarly articles, in any format, so long as the articles are not sold for a profit, and to permit others to do the same. "Grant" in this context refers to granting any copyright rights. The university will be granted a wide range of privileges, but this does not mean that it must use them. Universities can devise plans based on their preferences for the rights they will use and how, for instance by entering into broad agreements with publishers. In exchange for a publisher acknowledging the prior license and agreeing not to demand waivers, a university may consent to specific limitations on its behavior.

Clause 3: Non-profit Approach

The academic institution will not gain anything from the distribution of scientific articles in line with this policy. The institution will agree with the publishers that it will not even make sales to recover costs. However, the institution can offer reprographic services, such as

photocopies, reproductions, or scanned versions of the contents, upon request from any user and for a small price.

Clause 4: Policy Domain

The policy applies to all scholarly works written or cowritten while the person is a member of the institution, except works completed before the adoption of this policy and works for which the faculty member entered into an incompatible licensing or assignment agreement before the adoption of this policy. The Office of the Head of Academic Council/Librarian will waive the application of the license for a particular item or postpone access for a specified period upon express request from a faculty member.

Clause 5: Submission Method

Each faculty member must provide a free electronic copy of the author's final draft of each article, in a format deemed acceptable (such as PDF) by the office of the Head of Academic Council/Librarian, to the relevant Provost's Office representative before the date of publication.

Clause 6: Academic bound

Thesis submissions and publications that are requirements for all master's and doctoral students are to be stored at the university repository. Finding ways to publish the research articles in at least one open-access journal should be pursued (if required).

Clause 7: Faculty's / Academician's bound

Faculty members must submit their university grants, government or public-funded research projects to the institutional repository. The rule can be waived, though, if there are any copyright violations or other legal issues.

Clause 8: Faculties / Academicians bound

The responsibility for interpreting this policy, settling disputes over its application, and occasionally suggesting changes to the faculty shall fall to the Head of the Academic Council/office Librarian. The policy will be assessed after every three years, and the faculty will get a report.

6.7 Obstacles in the way of implementing OA policy

The adoption of an open access policy will benefit institutions as well as scholars. Adopting a policy, however, comes with its own special set of problems that might obstruct implementation and compliance, as many organizations can confirm. There are several factors, particularly in a developing nation like Bangladesh, in terms of the infrastructure, the funding, and the mindset of the parties concerned, including librarian administration, researchers, publishers, and legislators. The challenges that arise are as follows:

The lack of enthusiasm from library officials may make it challenging to implement the policy. Implementing the OA policy would lead to workload and system problems. To implement the legislation, libraries will have to rely on internal software, metadata capabilities, copyright expertise, repository administration, and campus outreach programs. If any of these efforts fail, the library runs the danger of falling behind schedule, alienating academic writers and users, and failing to make content publicly accessible. The adoption of a policy to look for and maybe archive permitted publications for the millions of published articles each year would involve a systems strategy for correctness and efficiency as well as rigorous decision-making on the part of library employees.

Sometimes, motivated librarians are unable to take significant action because lawmakers lack a comprehensive understanding of the OA policy. Moreover, because they worry about losing

their monopoly or earnings, many publishers and publishing companies are not interested in implementing the OA policy.

The application of OA policy is significantly influenced by the current copyright legislation. Any library's reconstruction or remodeling faces significant financial challenges. Adopting an OA strategy may be quite expensive due to the cost of organizational processes. Creating an institutional repository (IR), making data indexable, paying article processing charges (APC), hiring experts to address open access requirements, and monitoring compliance are just a few of the costs that contribute to this overhead.

The degree to which individuals wish to utilize the institutional repository (IR) will determine how effective the policy is. The policy's objectives won't be fully met if one of the creators, educators, or users isn't passionate about using the IR. It will be more difficult to manage this volume of work once the institutions deploy new or considerably upgraded data systems.

Not to add that Bangladesh's culture, traditions, and way of life do not support free access. The majority of individuals lack a clear, appropriate understanding of open access, which accounts for the unwelcoming reaction to OA legislation. The main concern is that open access will make all kinds of information and access available to everyone, which might make it easier for those with malicious intentions to obtain it. The widespread misunderstanding of OA can therefore be a crucial element in the implementation of OA policies.

In conclusion, for the OA policy to be properly implemented, all stakeholders must work together. Any party's failure might thwart the policy's overall execution.

6.8 Formation of Policy Authority/Committee

Governments provide the majority of the financing for public educational institutions. A private academic institution, on the other hand, does not get funding from the government primarily.

It should establish a policy authority or committee to carry out open access policy at academic institutions. In both public and private colleges, the hierarchy of policy power may differ.

A committee for formulating policies will be established in public academic institutions. The committee will be led by the registrar, with the librarian serving as secretary, and members from the faculty, publishing industry, senate, and well-known academics. The policy draft will be referred to the Senate for passage as an open access policy act after receiving committee approval. Later, the policy committee will be in charge of carrying out the policy to the fullest pedagogical degree. Authorities should be established for private institutions, with the registrar serving as the committee's chairman and members of the trustee board as committee members. Here, the librarian will serve as the membership secretary.

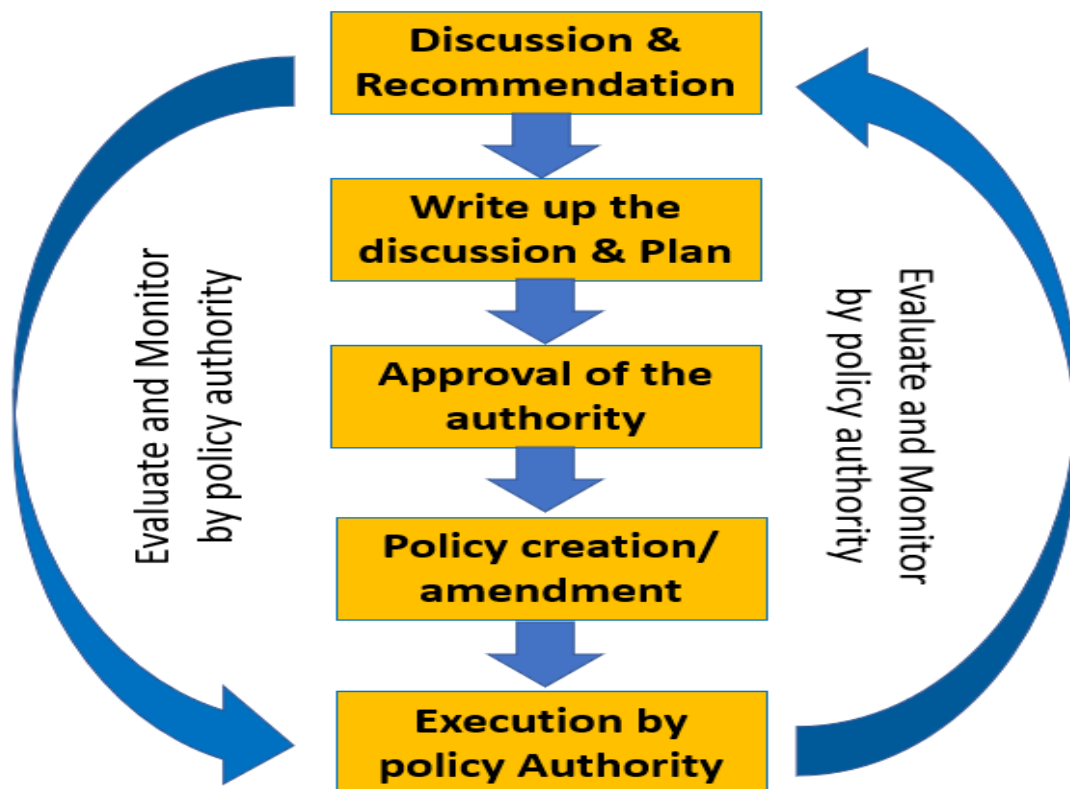


Figure 6.4: Workflow of policy authority

This working authority will be in charge of a variety of tasks. One of the toughest tasks for the group will be to evaluate the process' efficacy or results and, if necessary, revise the technique or recommendations. The policy authority or committee will be in charge of formulating, reviewing, and occasionally evaluating current policies.

6.9 Implementation Plan

Any plan or policy's most important component is its executing strategy. It significantly affects how effective a policy is. The recommended implementation strategies include:

1. There should be a clear instruction in the open access mandate of every research funding organization that all papers be placed in the author's institutional repository. To provide their own underfunded research output, universities, and research institutions can set their requirements, monitor their output, and ensure compliance.
2. The OA implementation committee has to examine current collection development and user service plans and consider how to integrate open access policy into the services and rules already provided by the institution.
3. The committee shall compile a report and present it to the higher authority with specific recommendations for integrating the open access policy with current practices.
4. For open access to be widely adopted, academic institutions need to get financial and human resource assistance from policymakers. They should also hire experts in open access to train the staff and provide the libraries with other services.
5. The OA implementation committee has to emphasize best practices and learn from other institutions that have effectively implemented open access policies in their academic institutions.

6. Academic institutions need to put self-evaluation into action to provide high-quality open access offerings.
7. The academic institution should update the open access policy regularly to keep it relevant.
8. The institutional management will respect and encourage open access to researchers. To encourage participation in OA, management might centrally promote the open access policy.
9. The institutions have the option to start institutional presses or OA publications alongside their libraries.
10. As a point of contact for OA, institutions may designate a central open access officer. The OA officer can act as a go-between for interested researchers and the library.
11. The library can fully address the frequently asked questions (FAQ) on OA and associated policy.
12. To encourage more academics to write in open access journals, the library might do targeted marketing.

6.10 Recommendation:

A policy's implementation and promotion inside the institutions have a significant impact on its success. The final draft must be submitted as soon as it is accepted for publication, not on the date of publication, which is frequently much later, erratic, unknown to the author, and frequently does not even coincide with the journal issue's published date of publication if there is one. Instead, the deposit must be made as soon as the final draft is accepted for publication. To guarantee efficacy, the open access policy should be worded in this manner. (Swan et al. 2015; Vincent-Lamarre et al. 2016). The OA policy should state that repository deposit is the

sole acceptable method for submitting papers for performance assessments, research evaluations, grant applications, or grant renewals. A team of technical and academic experts will establish an institutional open access repository and administer it by international standards. All of the scholarly materials of the institution will be made fully searchable online shortly following the deposition. The organization will be committed to enhancing the repository's resources and capabilities, educating academics and researchers on how to use it, sharing copyright knowledge, developing a data management strategy, and developing a preservation policy plan. Academic institutions will bear the majority of the expenditures associated with establishing the institutional repository and putting the policy into effect. The academic consortium could be founded inside the same type of university in some circumstances. The Medical College Consortium, Science and Technology University Consortium, and Engineering University Consortium, Special Universities (aviation, marine) Consortium are a few examples. Each member institution's scholarly outputs will be contributed to this repository. The delegates from each institution will establish a committee that will be in charge of formulating the rules and looking after the repository. For embargoed [non-OA] deposits, implementing the automated "email e-print request" button across all repositories is a nice idea.

‘All institutional repositories should implement rich usage and citation metrics as an incentive for compliance. Soon after this ideal mandate model is implemented by funders and institutions all across the world, there will be universal open access (OA) and a shift to reasonable, sustainable Fair-Gold OA (instead of the current premature, double-paid Fool's-Gold OA). As many reuse rights as users need and the authors choose to offer will also be available soon.’
(Harnad, 2013).

Regarding open access awareness, Bangladesh has come a long way, especially within the academic and scientific communities. An open access policy must be implemented to make this advancement sustainable and to guarantee that scientific and academic results are widely disseminated and more potent. This will encourage academics to produce more credible scholarly papers, boost inter-institutional research, and foster better scholarly communication. The cross-institutional development and proactive academic output management that can take advantage of the useful and well-organized routes for the discovery and application of open access research would be ensured by a structured open access policy.

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Chapter 7

Recommendations for the implementation of the proposed Open Access Policy

7.1 Proposed Model Plan

As it is clear from the findings of this study that the overall situation of the usage, collection, and preservation of OA resources in the country is not satisfactory to meet the present demand of the users in this age of information explosion, an attempt has been made to propose an OA policy for academic institutions in Bangladesh. The proposed policy is not restricted to any frame or limited to any particular administration or university library despite their various types. As a result, the policy has been designed to serve common purposes for all types of academic Institutions in Bangladesh. The policy has the following characteristics:

- The policy has been proposed based on the socio-economic condition of the country;
- The policy includes all the necessary elements after accumulating all the problems identified by the study;
- The policy has been proposed to create a favorable environment for OA resources by using modern tools and technological facilities;
- The policy has been proposed to set up an ICT-based information system in the academic institutions in Bangladesh; and
- The ultimate aim of the policy is to build a modern library and provide world-class services to the users of academic Institutions in Bangladesh.

7.2 Implementation Plan of the Proposed Open Access Policy

A model policy requires several attempts to implement. As a consequence, several phases over the full term of the plan's execution have been offered. Each step has been broken down into a number of action plans that must be taken into account while being put into practice. Throughout the project, we spoke with a number of librarians, students, faculty members, policymakers, and research funders on the promotion and implementation of open access. We learned about several significant obstacles to the policy's execution. We believe a 1-year model will be the most helpful for any new library intending to embrace open access in their institutions to address that issue. Some important objectives, as well as the essential plans of action to carry them out, must be established in the model's first phase. The original phase's goals will be accomplished in the second phase which will take about 3 months, which is its

focus. The mission will be accomplished in the third phase, and the vision of the policy vision will take place in the final phase.

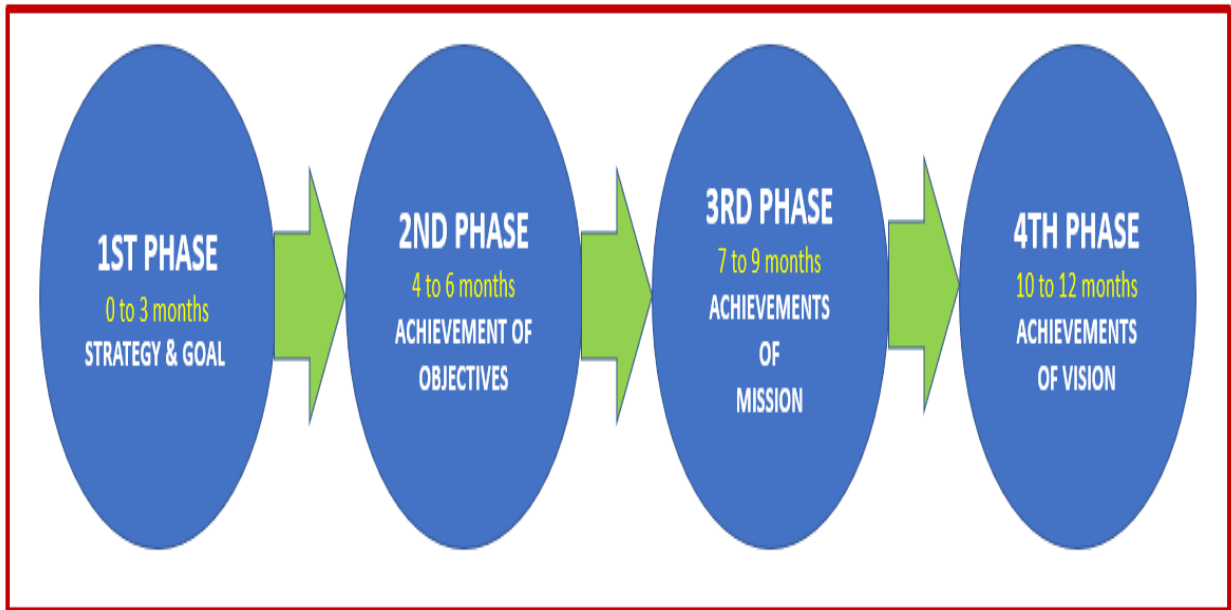


Figure 7.1: Development life cycle of the Open Access Policy

The 'OA policy' places a strong focus on guaranteeing the use and maintenance of OA in Bangladeshi academic institutions. Additionally, various tactics have been suggested to provide users with supplementary and advanced services related to OA resources. Additionally, emphasis has been placed on institutional repositories, open access publishing, copyright, and user education through information literacy programs. Furthermore, academic institutions have been encouraged to share resources, network, implement library advocacy, and maintain good relationships with vendors and publishers. The model policy incorporates the use of contemporary tools and technology, particularly ICT, for the preservation and dissemination of OA materials. By providing students, faculty members, and library staff with both intrinsic and extrinsic advantages, the policy suggested ensuring best practices and ongoing motivation.

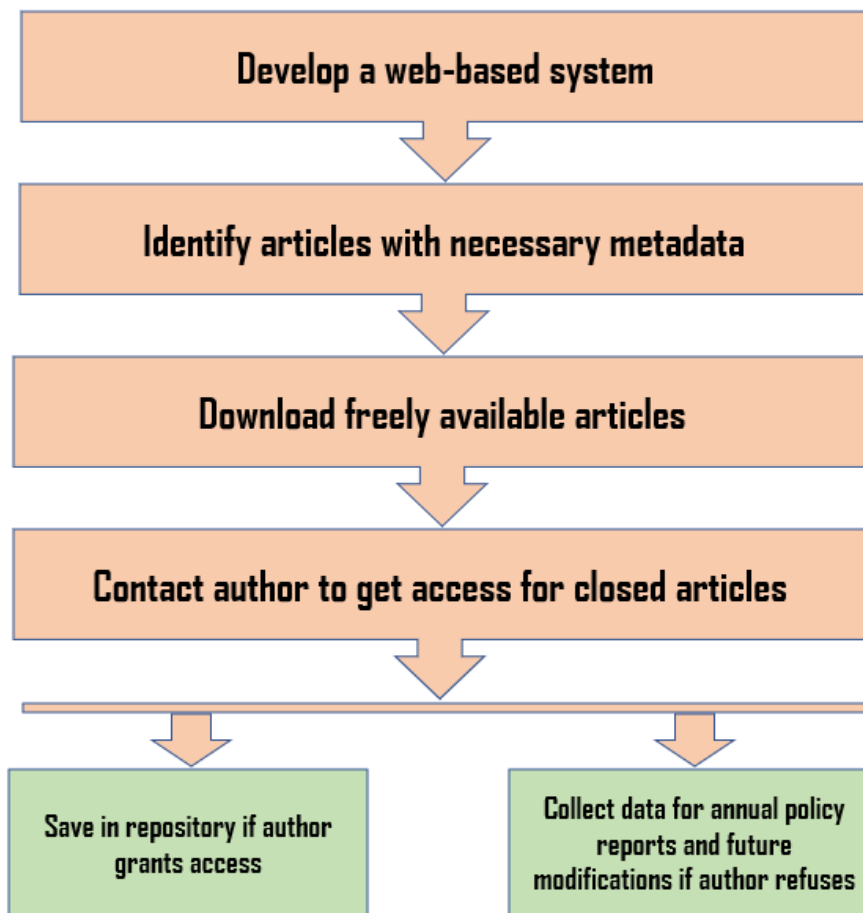


Figure 7.2: Implementation stage of the Open Access Policy

Academic institutions will take the lead in putting the policy into action. When the policy is approved, a web-based approach will be developed to allow authors to cancel their participation or submit accepted articles to the library's deposit. When the site is complete, the university library will send emails and postcards to faculty members notifying them of the start of the policy's opt-out/deposit roles. After that, the library will focus on developing an article-by-article implementation strategy. Finding specific articles with the required information will be the team's next duty. If the article is available, the library will download it, keep it in its repository, and send the authors a notification of its policy. If the item cannot be accessed right away, the authors will be contacted and asked for permission to deposit the work with the library. The research articles will be added to the repository if the authors agree to the proposal; otherwise, the data obtained from the transaction will be kept for use in yearly policy reports and evaluations. It will be difficult to access anything because new data is being created every day. Any plan for implementing open access will thus need to be revised often in order to successfully address current demands.

Chapter 8

Findings of the study

Summary of the Findings

Since the OA movement started, there has only been a limited amount of progress made in terms of popularizing it despite numerous attempts by academic institutions and OA advocacy groups. The current Ph.D. research makes recommendations for logical changes that would be compatible with our socioeconomic situation while also setting a set of standards for usage, perception, limitation, and prospect of open access resources in academic institutions in Bangladesh. The chapters make it clear that Bangladesh's academic institutions have been suffering from a lack of adequate and systematic initiative on the part of both private and state academic institutions. The study's questionnaires were successful in obtaining important data regarding the state of academic institutions. One of the study's key conclusions was that academic institutions in Bangladesh should create an OA policy and focus more on research in order to speed up the OA movement. However, as the preceding chapter demonstrates, Bangladesh's academic institutions have been managed and organized differently from those in other countries. Lack of proper infrastructure, trained labor, current technology, collaboration among libraries, marketing and communication efforts, user education, etc. have caused academic institutions to struggle.

An overview of the findings is offered in this chapter:

Findings: Chapter 1

The idea of open access is gaining popularity in this era of publicly accessible knowledge. The history and purpose of the study are covered in Chapter 1. The chapter first defined open access accurately before discussing the current challenges that libraries are experiencing. Additionally, the chapter discusses the necessity, importance, and range of the study and establishes some important goals and research questions that the study aims to answer. The chapter then discusses the researcher's approach, including the instruments used for data processing and analysis, the methods for choosing samples, the steps involved in putting the study into practice, and a structured list of all nine chapters.

Findings: Chapter 2

To identify any references to the topic of interest, a literature review must search through all published resources. The literature on open access resources is reviewed in Chapter 2 from both a national and international perspective. The chapter looks at user perception, attitude, and

behavior regarding open access as well as the growth of library collections using open access resources from an international viewpoint. This chapter also covers the importance of publishing and promoting open access materials as well as the significance of a policy to guarantee OAR usage.

The academic institutions in Bangladesh that have implemented or intend to implement an open access policy have not been thoroughly explored, according to a review of the literature. The chapter also discusses user perception and collection building using open access resources from a national viewpoint.

Findings: Chapter 3

The current state of OAR usage in Bangladeshi universities, both private and public, is covered in Chapter 3. There is a mention of the number of reading materials at six notable public and private institutions. The study discovered that when it comes to collection development, both public and private university libraries undervalue open access content. This chapter also offers a number of suggestions for the creation and incorporation of open access materials across the collection.

Findings: Chapter 4

The degree of understanding of open access resources among students and faculty members in Bangladeshi academic institutions is covered in Chapter 4. The chapter discusses the number and gender distribution of both student and faculty participants after briefly defining open access. The chapter discusses how the participants felt about the open access (OA) resources available in their libraries, the kinds of OA resources they used, how satisfied they were with the resources, and any issues they had while accessing the services. The goal of this study is to determine how much the academic community in Bangladesh's university libraries understands open access. To that end, the chapter provides several suggestions for boosting OAR users' engagement.

Findings: Chapter 5

The results of certain important questions addressed to the respondents are shown in Chapter 5 together with a sampling of all the participants in this study. This chapter's figures highlight the obstacles to open access policy, the reasons users don't know about open access resources,

the reasons libraries don't keep OARs, and the issues users experience. The chapter also suggests a few strategies for encouraging open access in academic institutions in Bangladesh. This chapter also discusses various obstacles to promoting open access materials as well as some concluding remarks.

Findings: Chapter 6

The focal point of the entire study is in Chapter 6. The chapter first discusses the existing issues, the research methodology, and the potential for an open access policy. Then it lists several obstacles to the promotion of OARs and suggests approaches to overcome them. The chapter continues with a proposal for an open access (OA) policy for Bangladeshi academic institutions, along with some likely barriers to policy implementation and a solution, which is the creation of a policy authority or committee. The chapter concludes with a few more suggestions and closing remarks.

Findings: Chapter 7

In order to ensure the easy implementation of the suggested OA policy, Chapter 7 provides a sample plan with a few desired features. The establishment of the goals is the first phase and realization of the visions is the last of a hypothetical 12-month life cycle for the OA policy. Also covered in depth in this chapter is how the OA policy will be implemented.

OA should be viewed as a movement to educate faculty members about their rights when they produce a journal article. Funding to cover OA fees is an important way to get faculty members on board. An implementation plan should be established even before the policy is passed. The library should be flexible in helping faculty understand, comply with the policy, and keep the submission process simple. Publicity of the collection should be done to make it available any way possible.

Chapter 9

Recommendations and Conclusions

9.1 Recommendation

Based on the review of existing literature, discussion with the stakeholders, key administrators of the academic institutions, observation through field visits, and analysis of the survey data, the researcher would like to put forward the following recommendations for ensuring the successful implementation of the model plan and thus establishing the academic institutions as the hub of excellence for open access environment in data, education, and research:

1. Putting together a policy for open access is a big job. Physical and logical infrastructure must be in place for the process to go smoothly. The open access policy should be reflected in the institution's internal policies and in the technology they use. The open access collections should have computers and monitors so users can search using them. The right tools, skilled workers, and administrative help should be available to the users.
2. The distinctions between the regulations of various libraries need to be removed. The government should ensure that laws and regulations are modern and up-to-date to promote open access among libraries and research organizations.
3. Open access should be part of the academic curriculum in higher education so that students can learn about it from the beginning. Faculty members, researchers, and library staff should be trained on open access. There should be enough open access resources for the students, researchers, and faculty members. The library staff should help them find and use open access resources. This practice will make open access more popular.
4. Librarians constantly face the difficulty of maintaining current resources with a limited amount of space. OARs, which are mostly digital, can be of great use in this case. If the infrastructure, policies, and practices can be changed to include open access resources, the whole organization will benefit for a long time. Policymakers, library professionals, and stakeholders should all understand the benefits of open access.
5. A model plan needs adequate finance, monitoring, and assessment to be implemented successfully. Every year, the authority should create a thorough and well-thought-out development strategy to simultaneously promote the policy to other organizations. An adequate budget that makes sense and is in the proper quantity should be available for IT purchases, building and maintaining databases, training and development, recruiting

qualified personnel, and other related expenses. In such a scenario, UGC may lead the way by providing yearly funding to libraries.

6. National policy should incorporate professional open access specialists like the UGC, the Information Council, and the Library Commission, notably the Education Commission. There should be several directories for libraries and information institutions, and a national accreditation commission should be established to monitor their operations.
7. Academic institutions should establish information literacy programs on open access resources and policies as a tool for user education and awareness.
8. OA resources should be used following guidelines, and OA policy should be implemented using a plan. The academic institutions' highest governing body will have the authority to issue resolutions.
9. Advocacy groups for OA policies should be developed in collaboration with academic institutions' personnel, publishers, students, librarians, trustees, stakeholders, and other interested parties. They will be the lobbyists who inform users about open access resources and policies while negotiating with the management, publisher, academic community, and to some extent with government policymakers to achieve the desired outcomes.
10. Different national and international organizations that are working on open access materials and open access policies should step forward to spread awareness of these topics among the general public. The academic community, publishers, and library staff, can plan recurring training sessions. They might serve as the OA supporters' main national support center. By planning seminars and symposiums, they can advocate for the emerging issues surrounding OA resources and OA policy. In this regard, Open Access Bangladesh, the Open Access Consortium Sparc, LAB, and BALID can play a significant role in spreading awareness of open access resources and policies among Bangladesh's academic institutions.
11. For academic communities to follow embargo dates, determine which version can be made open access, and other things, the library authorities should negotiate with publishers to allow articles to be openly preserved in institutional repositories. They will be able to easily access publications that are behind paywalls in this scenario.

12. Academic institutions in Bangladesh should offer various open access initiative models and the scholarly community should be encouraged to use them for all facets of academic education. An inventory of the initiatives should be included in the Open DOAR.
13. The advocacy and other initiatives should be designed to promote open access resources. The use of OAR for current awareness services has to be introduced. Requests for reference and information resources, collecting and storage of OAR on a local server in academic institutions, and easy access to OAR via the library website should be ensured.
14. It is imperative that librarians take the lead in promoting the use of open access journals and open archives for teaching, learning, and research. Consequently, a program of awareness should be established in the academic libraries for both the scholarly communities and the library staff.
15. Events for resource sharing and networking have to be arranged more frequently. The government should promote data communication support for network establishment at local, regional, national, and international levels. To achieve this, all obstacles that prevent the widespread use of OA resources should be removed. All users ought to adhere to the same standard.
16. The technological divide between urban and rural communities needs to be closed. The country's tiny cities and sub-cities should be introduced to modern technology for using OAR. To increase user awareness, multiple campaigning efforts should be undertaken.
17. Universities implementing an Open Access policy have resulted in wider dissemination of publicly funded research. The best way to meet these standards is to have an institutional repository.
18. An open access institutional repository must house the institution's research corpus and gray literature. Every piece of information must be accurately categorized based on the author's identity, the names of any co-writers who have contributed, the type of content, pertinent keywords, the department, and other considerations. Any visitor will then be able to find what they're searching for easily.
19. It should be encouraged to form a national consortium for sharing open access resources. A consortium may be established between public and private academic

institutions or in cooperation with the libraries of these institutions. The consortium will also preserve the foreign collaborators' OA resources in addition to local ones.

20. Digital resources should be maintained, and publisher and author authorization for copyright use should be requested. The author or publisher must first provide their permission before digitizing any further physical copies.
21. For the best usage of OAR, digital institutional repositories should be used in place of traditional ones. It should include both internally produced materials like thesis, reports, research, and term papers as well as externally produced academic works with preservation rights. Along with repositories, CD-ROM databases, digital photo galleries, and archives of priceless ancient materials need to be created and preserved.
22. Public relations and marketing efforts for open access resources should be stepped up. Dissemination of Open Access resources should use a variety of contemporary social communications systems. Communication using social media is an effective way to raise knowledge and consciousness among stakeholders. Marketing should be encouraged using notice boards, email, web notice boards, automatic email alerts, mobile text messages, telephone, and mailing lists, and social media sites such as Facebook, Twitter, Google Buzz, MySpace, Reddit, Google Bookmarks, and others. The plan is for anyone who wants to share something to simply bookmark it and post it across other channels.
23. The university act/amendments should incorporate the open access mandate. The Act will set standards for many departments' operations, roles, and operational processes. The terms and conditions of OAR, as well as the selection criteria, will then be decided.
24. There will be unforeseen obstacles to the suggested model policy for academic institutions in Bangladesh, and those should be removed. The research's conclusions suggest that the library needs an open access policy. Lack of faith in the policy's implementation is the main obstacle. It could be taken into account when establishing an OA policy.

9.2 Limitations of the Study

There are many potentials for conducting research in Bangladesh, but there are also many challenges that stand in the way of doing so. During its execution, the current study on planning for designing a policy on open access resources for academic institutions in Bangladesh

encountered numerous anticipated and unanticipated obstacles. The researcher discovered numerous issues with using open access resources throughout the survey, field visits, and discussions with professionals. Academic institutions in Bangladesh lack an open access policy and publication model, which must be addressed as soon as feasible. The proposed model design should have included everything, but due to several constraints, this was not possible. The following list outlines the study's limitations:

- The qualifier "academic institutions alone" helped to focus the investigation. In Bangladesh, there are 109 private academic institutions and 53 higher public academic institutions. The researcher used just 12 academic institutions for his study (6 Public and 6 private). The study sample did not include any of Bangladesh's other academic institutions.
- The proposed model's cost-benefit analysis has not been taken into account. Due to budget limitations, the technological parts of the model's implementation have also been overlooked.

9.3 Future scope research

Designing a policy on open Access resources is a broad area of study, particularly for Bangladeshi academic institutions. Many topics were not included in this study because it only included public and private academic institutions. The open access concept should be used in Bangladeshi academic institutions to guarantee the quality of research and scholarly publications. Academic institutions should implement a successful and contemporary open access strategy. To keep up with the developed world's pace, an ongoing procedure must be used to update the open access policy. Authorities in power within the government and academic institutions need to be more aware of this. To improve open access practices in data, education, and research in academic institutions, ongoing research should be conducted across the nation.

Based on the results of this study, the following areas are suggested for future research:

- The open access policy in Bangladesh: an evaluation of university libraries;
- Open access policy practice in university libraries of Bangladesh: A study of some selected private and public universities;
- Problems and prospects of using open access resources in Bangladesh;

- Open access resources- Myth and Reality: Bangladesh perspective;
- The problems in implementing an open access policy in Bangladesh;
- A Study on staff attitude towards Open Access Resources: Bangladesh Perspectives;
- A Study on user attitude towards Open Access Resources in Bangladeshi academic institutions;
- Impact on research by using OA resources in Bangladesh Academic institutions.

9.4 Conclusion

There is a great deal of demand for researchers to publish their work in the current national and international research environments. Academic institutions and librarians, on the other hand, are concerned about gathering materials for the need of scholarly communities. Alongside the growing use of open access, the problem of dubious open access practices has emerged. Academic libraries and librarians are presented with opportunities as well as difficulties. To take advantage of shifts in scholarly communication, like open access, researchers and library professionals need to acquire the necessary skills for locating and choosing the best OA resources for their needs. Researchers, students, and library staff can be guided by an OA policy to make the greatest use of OA resources and OA publications in academic institutions. Publishers and policymakers can also obtain guidelines for open access publishing. Academic institutions should establish their own OA policy in this case.

The present study was conducted to propose a suitable policy for accelerating the usage and contribution of OA resources in collection development in academic institutions of Bangladesh. Efforts have been made throughout the research to determine the level of understanding, perception, problems, and strategies to promote OA resources in the academic institutions of Bangladesh. A comparative analysis has been conducted to get a clear picture of the differences in problems between public and private academic institutions in Bangladesh except for a few aspects. Based on the summary of the findings, a model policy has been proposed and guidelines have been provided for its implementation. The researcher believes that this research will help to accelerate OA practices in both public and private academic institutions in Bangladesh. Scholarly communities, librarians, publishers, stakeholders, and policymakers will find a significant avenue of learning through this study. The researcher thinks this research will introduce a new era in the field of OA resources and publishing.

APPENDICES

Appendix-1: Questionnaire for the Scholarly Community

Appendix-2: Questionnaire for Library Professionals

Appendix-3: Questionnaire for MPhil/ Masters level students

Appendix-4: Questionnaire for Funders, Policymakers, Publishers, and Stakeholders

Appendix 1

[Questionnaire for Scholarly Community]

[Dear Sir/ Madam, please follow the instructions to answer these questions. The survey aims to collect data about *Open Access Resources: Designing a Policy for Academic Institutions of Bangladesh*. We would be grateful if you could take a few minutes to fill up the survey. The responses will only be used for research purposes. Your response will be kept strictly confidential]

Please provide a tick mark (✓) in the answer area or provide appropriate information where applicable.

1. Name:
2. University:
3. Department/Institution:
4. Gender: Male Female
5. Do you use open access resources for your research/study?
 Yes No, I don't use [Please go to Q.10]
6. How often do you access OA Resources?
 Most often Often Rare
7. What types of OA Resources do you use the most?
 Open Journal Open Book Open Data Open Thesis
8. Which features of OA Resources do you consider to be the most important for your research/study?
 Free availability Up-to-date information Full-text availability
 Resources that show the links to other resources Quick retrieval
9. Indicate the problems that you face while using OA Resources:
 Difficult to find relevant document Not reliable document
 A limited number of titles Not maintaining standard
 Others (please specify)

10. If your answer is 'No' in Q.5, then state the reason for not using OA Resources:

- I don't find it interesting enough It is not useful
 I don't know how to find it Others (Please Specify)

11. Do you agree that open access in research will help increase your research impact?

- Agree Not Agree I don't know

12. Do you feel the urgency for your institution to have an institutional repository?

- Yes No Undecided

13. Do you think your educational institution should possess an open access policy to preserve its scholarly outputs?

- Yes No Undecided

14. Does your institutional library help you promote open access in research?

- Yes No Undecided

15. Any additional comments or suggestions, please write below (If you have any)

Appendix 2

[Questionnaire for Library Professionals]

[Dear Sir/ Madam, please follow the instructions to answer these questions. The survey aims to collect data about *Open Access Resources: Designing a Policy for Academic Institutions of Bangladesh*. We would be grateful if you could take a few minutes to fill up the survey. The responses will only be used for research purposes. Your response will be kept strictly confidential]

Please provide a tick mark (✓) in the answer area or provide appropriate information where applicable.

1. Name:
2. University:
3. Designation:
4. Does your library use open access resources?
 Yes No [Please go to Q.09]
5. What types of OA Resources do library users use the most?
 Open Journal Open Book Open Data Open Thesis
6. Does your library connect with any national or international consortiums?
 Yes No
7. Does your library own any prescribed open access policy for resource procurement and dissemination?
 Yes No
8. Does your library maintain an institutional repository?
 Yes No
9. What is the level of interest of your users using OARs?
 Very frequent
 Frequent
 Not interested at all

10. If your answer is 'No' in Q.3, then why does your library not use open access resources?

- Poor infrastructure
- Lack of institutional cooperation
- Users are not interested enough in OARs
- Poor availability of open access resources

11. What are the problems you are facing while developing an open access collection?

- Unreliability of resources
- Lack of collection development criteria
- Poor availability of relevant OA resources
- Lack of policy for OA collection development

12. Any additional comments or suggestions, please write below (If you have any)

Appendix 3

[Questionnaire for MPhil/ Masters level students]

[Dear Sir/ Madam, please follow the instructions to answer these questions. The survey aims to collect data about *Open Access Resources: Designing a Policy for Academic Institutions of Bangladesh*. We would be grateful if you could take a few minutes to fill up the survey. The responses will only be used for research purposes. Your response will be kept strictly confidential]

Please provide a tick mark (✓) in the answer area or provide appropriate information where applicable.

1. Name:
2. University:
3. Department/Institution:
4. Gender: Male Female
5. Do you use open access resources for your research/study?
 Yes No, I don't use [Please go to Q.9]
6. How often do you access OA Resources?
 Most often Often Rare
7. What type of OA resources do you use the most?
 Open Journal Open Book Open Data Open Thesis
8. Does your library hold enough OA resources?
 Sufficient in number Not sufficient in number
 Quality is not up to the mark I have no idea
9. If you are not using OA Resources, state the reasons for not using OA Resources:
 I don't find it interesting It is not useful
 I don't know how to find it Others (please specify)
10. Does your library have any contribution to OARs in conducting your research/academic work?
 Most often Often Rare
11. Any additional comments or suggestions, please write below (If you have any)

Appendix 4

[Questionnaire for Funders, Policymakers, Publishers, and Stakeholders]

[Dear Sir/ Madam, please follow the instructions to answer these questions. The survey aims to collect data about *Open Access Resources: Designing a Policy for Academic Institutions of Bangladesh*. We would be grateful if you could take a few minutes to fill up the survey. The responses will only be used for research purposes. Your response will be kept strictly confidential]

Please provide a tick mark (✓) in the answer area or provide appropriate information where applicable.

1. Name:
2. Institution:
3. Designation:
4. Gender: Male Female
5. Do you have any concept/ idea about open access?
 Yes No [Please go to Q-6]
6. If 'No', then what is the reason?
 Lack of campaign on OA
 Lack of interest
 Have a vague idea about the term
 Never felt the urgency
 Never heard it from researchers or librarians
 Have no idea how it might contribute to publishing/ funding
7. Are you familiar with the open access policy?
 Yes No
8. Do you feel the urgency of an Open Access policy?
 Yes No [Please go to Q.10]

9. Does any educational institution or research organization show any interest or try to collaborate regarding OA policy?

- Yes No

10. If your answer is 'Yes' in Q.8, then what could be the initial approach to implementing OA?

- Partial OA
 Full OA
 Should take more time

11. From your perspective, what could be the possible barriers to the effectiveness of such a policy?

- Copyright
 Lack of government guidelines
 Lack of reliability
 Misconception on open access
 Lack of collaboration and coordination with librarians and researchers

12. What could be the benefits of such a policy?

- It will resolve copyright-related issues
 It will be easier for publishers to take decisions on upgrading to OA, partial OA, or being in a traditional approach
 It might spark the chance of forming consortiums among publishers or funders.
 It will monitor both publishers' and authors' interest rigorously