Role of Information Technologies in the College Libraries Affiliated to Maulana Abul Kalam Azad University of Technology in West Bengal

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ABSTRACT

This paper discusses different dimensions of Information Technology (IT) and smart technology. The study provides the awareness of technology, software & internet used in the library to enhance library resources & services to the end users. Nowadays libraries have adopted new and innovative technologies to assist their aims and objectives to provide their users with effective and efficient activities and services. The present study highlights the areas where e-resources, software, library automation, OPAC/ Web OPAC, Barcode Scanner/Readers, RFID and smart technologies can be applied in the college libraries affiliated with MAKAUT in West Bengal.

KEYWORDS: Information Technology, MAKAUT, College Libraries, Software, E-Resources.

INTRODUCTION

Maulana Abul Kalam Azad University of Technology (MAKAUT) is a technical university which is situated at Haringhata, Kalyani, in the district of Nadia & Salt Lake Campus. The Technical University offers various courses in Engineering & Technology, Pharmacy, Management, BCA, MCA, Architecture, Applied Science & various Professional courses. MAKAUT affiliated/ recognized by AICTE, UGC, AIU & NAAC. Courses offered by the university are approved by AICTE and UGC. The initial name of the university was West Bengal University of Technology, changed the name to Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal on 6th April, 2015. About 200 technical colleges are affiliated with MAKAUT in the state of West Bengal.

Selected college libraries of MAKAUT have remarkable changed their way of providing services as well as library operations and activities in the present time and also got momentum using IT, smart technologies rather than traditional services in their libraries. In the smart technology scenario changing needs of the patrons, library

professionals also change their attitude & enhance their capabilities as well as competencies for providing their services the meet the required needs of the users. So library professionals can be capable to use smart technologies to meet their objectives in the study. The study is an attempt in the context of selected college libraries of Maulana Abul Kalam Azad University of Technology (MAKAUT) to examine the effective use of IT, smart technologies & also delivery of innovative services to the users.

Libraries of selected colleges of MAKAUT are willing to use various devices of ITs, and smart technologies for application to drive optimal advantages, and benefits with minimum costs. So smart technologies have brought revolutionary changes in the operations and functions of library activities. In the era of information explosion & information overload has occurred, due to the application of smart technologies. Libraries are using innovative technologies in library operations to provide efficient library services and libraries are connected in networking for resource sharing, providing remote library services. In this way selected college libraries of MAKAUT is improving its activities rather than traditional college and university libraries' archaic activities.

Libraries of engineering & technical institutions have not only changed their types of collection of resources but also changed their operations, and service patterns due to the changing needs of the users. Skills of library professionals & library personnel also change to provide library operations & services from traditional to hybrid. This paper provides an Application of Smart Technologies in the Selected College Libraries affiliated with Maulana Abul Kalam Azad University of Technology in West Bengal:

LITERATURE REVIEW

This paper related to the extensive literature review of information technology applications in college libraries. It helps a comprehensive review of the literature on the previous works as well as similar works, the resources used for reviewing the literature include primary and secondary sources such as journals, theses, abstracts, reports of surveys, memories, publications data, etc. The literature review is an essential component of research work. It presents various aspects of research problems & searches in the right channel on the advanced development of the present study. Literature reviews not only provide the earlier/previous knowledge of similar/ related subject areas but also provide the right direction in which the research is going.

Chattopadhyay, P. & Halder, B.K. (2022): stated UGC Care listed journal of all disciplines published by The University Grants Commission. Library and Information Science are also included under the social science stream. Information is analyzed and measured statistically and mathematically.

Lisbdnetwork (2021): explore the impact of ICT in libraries and society in the present decade of the 21ˢᵗ century. The impact of ICT changes the scenario of academic libraries such as collection management, especially electronic resources i.e. E-Journals, E-Books, databases, Institutional Repositories etc. impact of ICT on LIS professionals as well as effects of the development of users' community. ICT offers information from anywhere, any time in the globe in electronic or digital format. This technological convergence has had an impact on the way we live, work, think, ideas, and play. As a result, our everyday life has been changed such as the use of e-mail & mobile phone with internet connection at any place.

Bharti, M. C. (2019): described that digital resources have been developed drastically & dynamically in the last two decades. The advent of ICT in modern libraries e-learning, and digital learning started to meet the end users' need. Nowadays everything is available on the online digital platform & patrons get their required information with the connectivity of the internet and electronic gadgets.

Adebayo, O.A. (2018): described the Role of ICT in the Provision of Library Services: A Panacea for Sustainable Development in Nigeria. This paper explores ICT in the Management & Provision of library services and its implication for sustainable development in Nigeria. The challenges of ICT application in library services are due to inadequate ICT-based resources, ICT-based services in the libraries & trained manpower, or library profession.

Bhoi. Narendra Kumar (2017): depicted the use of ICT in the libraries for operational work & provided awareness of the use of technologies in the library. Why ICT is needed in the library? This paper highlights the area of libraries, where ICT can be applied and render enhanced services to the end users. Various library operations took place with the help of technologies such as FRID, QR code & library automation. He also stated the benefit of Institutional Repositories for archiving library resources, the quickest library services, and approachable information dissemination.

Fagbe A, Ruth C. A, Sunday O & Oyenuga E (2015): described role of Information Technology in academic libraries and information Centers with well-equipped resources to facilitate the acquisition, processing, organizing, retrieving, dissemination and access to information. The impact of IT in academic libraries to meet the scholarly needs of the users cannot be overemphasized. This paper recommended IT resources, availability of adequate manpower & organized training for patrons to use the resources. These factors affect the implementation of IT services in academic libraries. These factors play the most significant role in shifting a paper-based system to a fully automated system.

Modi, Yogesh (2015): stated that Information Technology for Library Consortia. It is related to computing technology. Presently libraries are offering opportunities with the help of IT such as online, web OPAC, E-Journals, E-Books, Repositories, digitization, virtualization, etc. This paper attempts to existing consortia in India & their pros & cons with the help of IT.

Vijayakumar, A. & Vijayan, Shudhi S (2011): explored the necessity of information for the development of human beings as well as society. Information Technologies has the effect to change the pace of living of people, work of people & other jobs worldwide. The application of Information Technology in libraries drastically changes the role of libraries from traditional to hybrid. As a result, library services through IT fulfill the information needs of the users at the right time in the right place to the right person.

Statement of the Problem:

The present study attempts to explore the use of Information Technologies, smart technologies and their activities, routing work & services in the selected college libraries affiliated with Maulana Abul Kalam Azad University of Technology (MAKAUT) in West Bengal. It has been undertaken by the researcher to identify the problems in the

collection development of e-resources and value-added services of e-resources in different college libraries under study. The researcher also attempts to find out the actual usage of IT/ ICT, smart technologies and their services in the selected technical college libraries under study.

OBJECTIVES OF THE STUDY

The following objectives for technical college libraries are shown in below

- To explore the IT-based activities, operational work & services provided by the selected college libraries under MAKAUT;
- To identify the ICT infrastructure and extent of use in the selected college libraries under MAKAUT;
- To examine the ICT skills and attitudes of the library professionals working in the selected college libraries of MAKAUT;
- To ascertain the users' responses in engineering & technical college libraries to introduce RFID, Bar code technology, library automation & housekeeping operation and web2.0 technology etc.;
- To find out the impact of IT in the college libraries affiliated toMAKAUT;
- To examine the effective use of e-resources and online materials with the help of information technologies to meet the needs of the users in the college libraries of MAKAUT;

Hypothesis:

The following hypotheses have been formulated by the researcher for the present research study:

1. **Ha**-The relationship between IT infrastructure and IT-based library operations, activities & services performed by the college libraries affiliated to MAKAUT is significant.

   H_0-The relationship between IT infrastructure and IT-based library operations, activities & services-performed by   the college libraries affiliated to MAKAUT is not significant.

2. **Ha-** The optimum use of library e-resources of the college libraries affiliated to MAKAUT is significant.

   H_0-The optimum use of library e- resources of the college libraries affiliated to MAKAUT is not significant.

3. **Ha**-Users' expectation on the use of IT in college libraries affiliated to MAKAUT is satisfactory.

   H_0-Users'expectation on the use of IT in college libraries affiliated to MAKAUT is not satisfactory.

Scope and Limitation of the Study:

A comprehensive study is needed for the application of IT, smart technologies in engineering and technical college libraries affiliated to Maulana Abul Kalam Azad University of Technology (MAKAUT) in West Bengal. So far, no study has been accomplished which provides comprehensive and authentic data to the library administrators and decision-makers to determine the current situation of college libraries affiliated to MAKAUT given roles in IT application and to act as a basis for evaluating past and present library policies and for future planning. The present study covers all the courses colleges affiliated to MAKAUT, including government, autonomous and private colleges throughout West Bengal. Total Colleges & Its Courses Affiliated by Maulana Abul Kalam Azad University of Technology, West Bengal (formerly West Bengal University of Technology) for the Academic Year 2021-2022 (As on 07.09.2021) are One Hundred Ninety-Six (196).

Research Design:

For solving the research problem, the research methodology of the study includes the use of a questionnaire for the collection of primary data from the concerned college libraries. The data has been obtained by using a questionnaire as a tool. A well-structured questionnaire will be designed. The questionnaire will be constructed two ways. One set of questionnaires has been prepared for librarians, library personnel's, & it is distributed to ten (10) colleges and five (05) users each college library affiliated to Moulana Abul Kalam Azad University of Technology in the state of West Bengal.

Statistical Measurement of the Study:

Statistical tools used for data analysis of the present study. Here researcher used t-test as sample size is less than thirty (30). The formula of t-test is as follows

Formula for T test is $T = \frac{x - \mu}{Sx}$

        x = mean of sample.

        μ = mean of population.

        S_x = standard error of mean difference.

DATA PRESENTATION, ANALYSIS & INTERPRETATION

Researcher surveyed ten (10) college libraries affiliated to MAKAUT, they are as follows:

Sl. No.	Name of the Institution	Name of the Library Personnel	Gender	Designation	Educational Qualification	Experiences	Contact No.
1	Dr. B.C. Roy Engineering College	Dr. Subal Chandra Biswas	M	Librarian	MLIS, Ph. D.	35 yrs	9382572610
2	Haldia Institute of Technology	Rabi Shankar Chattapadhyay	M	Librarian	B. Sc, MLIS, M. Phil	19 yrs	9433058910
3	Heritage Institute of Technology	Dr. Binod Behari Das	M	Advisory-Library	MLIS, Ph.D	25 yrs	9433713022
4	Siliguri Institute of Technology	Pinaki Sarkar	M	Librarian	M. Sc, M. Lib. Sc, M. Phil, Bed.	19 yrs	9434527272
5	Techno India	Dalia Ghosh	F	Librarian	M.A., B.T, MLIS, BED.	16 yrs	8902725283
6	Govt. College of Engineering & Leadhar Technology	Dr. Anita Basak	F	Librarian	MLIS, Ph.D.	21 yrs	8777581306
7	Narula Institute of Technology	Medha Ray	F	Librarian	MLIS, MPHIL, NET.	6 yrs	7031805872
8	Dinabandhu	Atanu Mondal	M	Assistant	B.A. (Eng.),	4 yrs	Atanu.mond

	Andrews Institute of Technology & Management.			Librarian	MLIS, NET		al001@gmail.com 7699302399
9	Hooghly Engineering & Technology College	Dr. Nakul Chandra Mondal	M	Librarian	M. Com, B.Ed, MLIS, PhD, GDCA, CFAS	20 yrs	9732551443
10	JIS College of Engineering	Arpita Basu	F	Librarian	MSC, MLIS	14 yrs	9339078461

Collection Development & Utilization of E- Resources

E-resources Collection in College Libraries affiliated with MAKAUT:

E- resources collection development is an important task of any academic library. E- resource collection development depends upon the requirements of the users & meets the needs of the patrons. Nowadays the information need and information-seeking behavior and the way to information access of the patrons have already been shifted from traditional to hybrid due to tremendous growth of information.

The question was presented in front of the respondents to know different databases of the field of technology & engineering and ask the number of items subscribed by the college. The status of the availability of e- resource in different technical college libraries in the state of West Bengal.

The following table 01 shows the status & availability of E-Resources:

Type of E-Resources	No. of College Libraries	Percentage (%)
E-Books	09	90
E-Journals	10	100
Online Databases	10	100
CDROM/DVDROM Databases	08	80
Audio/ Video Materials	04	40
Institutional Repository/Digital Library	07	70
NPTEL- Online Web/ Video	10	100
Test Statistic	t Stat = 9.898514157, t Critical two-tail = 2.446911851, P(T<=t) two-tail = 6.13869E-05 = 00613869	
Sig.	t Stat = 9.898514157 > 2.446911851, null hypothesis rejected. Statistically variation is observed in the data of different college libraries. There is a significant difference/ association among the e-resources of various college libraries. P-Value Approach: .00613869 < .1, null hypothesis rejected.	

It is revealed from the table 01 that 10 (100%) college libraries are using E-Journals, online databases & NPTEL-online web/video followed by 09 (90%) College libraries are using E-Books, 08 (80%) college libraries are using CDROM/DVDROM Databases, 07 (70%) college libraries are using Institutional Repository/Digital Library and 04 (40%) college libraries are using Audio/Video Materials. From the analysis, it is inferred that t Stat = 9.898514157 > 2.446911851, null hypothesis rejected. Statistically variation is observed in the data of different college libraries. There is a significant difference/ association among the e-resources of various college libraries.

P-Value Approach: .00613869 < .1, null hypothesis rejected.
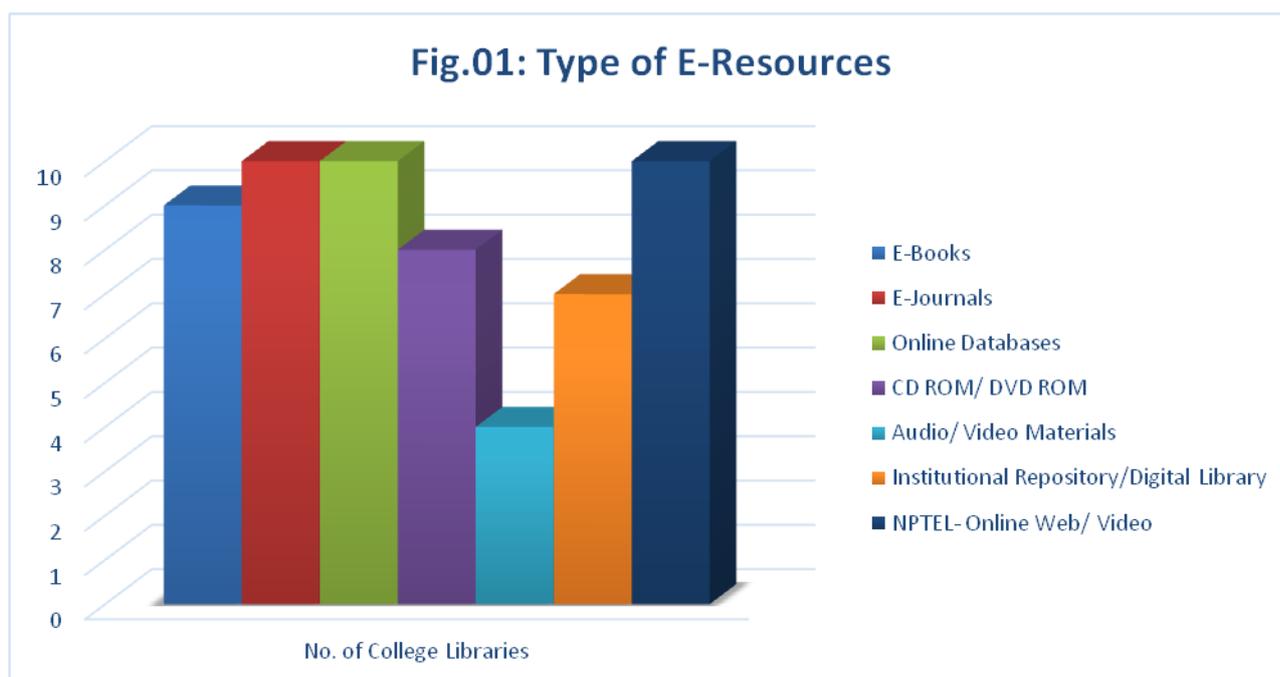
Tabulated data can be presented in the following figure:

Fig.01: Type of E-Resources

- E-Books
- E-Journals
- Online Databases
- CD ROM/ DVD ROM
- Audio/ Video Materials
- Institutional Repository/Digital Library
- NPTEL- Online Web/ Video

No. of College Libraries

Fig. 01 Shows Types of E-Resources in the College Libraries affiliated to MAKAUT.

ICT Infrastructure Availabilities/ Facilities of Technical College Libraries Affiliated to MAKAUT

Advancement of ICT in the 21st Century & introduction of ICT in libraries, infrastructure has been changed from traditional to hybrid. Now a day's library resources, operation & services largely depend on the application of ICT with library infrastructure & skilled library professionals. The impact of ICT on the activities, and functions of Technical College libraries has remarkably changed. ICT facilitated & converted traditional activities into automated activities, at present ICT offers cloud-based security and services. ICT offers various opportunities such as effective use of library resources, efficiently meeting the needs of the end user, developing institutional repositories, provide value-added information services, initiate capacity-building programs for the library staffs thus user's expectation also changes time to time.

Barcode Readers/ Scanners Used in the of College Libraries Are Shown in the following Table 02:

Barcode Readers/ Scanners(Ranges)	Govt. College	Autonomous	Private Aided	Private Un-aided	Total
2≥	01			02	03
3		03		02	05

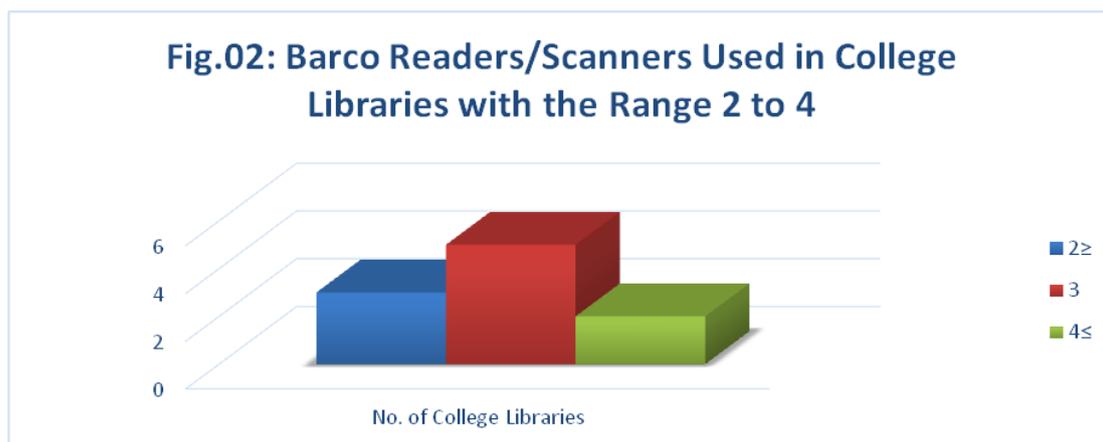| 4≤		01	01		02
Total	01	04	01	04	10
Test Statistic	t Stat = 3.77964473, t Critical two-tail = 4.30265273, P(T<=t) two-tail = 0.063414188				
Sig.	t Stat = 3.77964473 < 4.30265273, null hypothesis failed to reject, Statistical variation is not observed. There is no significant difference/ association among the barcode readers/ scanners of various college libraries.				

Fig. 02 Shows Barcode Readers/ Scanners Used in the College Libraries affiliated to MAKAUT.

LIBRARY AUTOMATION

Impact of ICT in library both for automation of its routine activities as well as rendering search facilities to the patrons. Computers are increasingly used day by day in the library for internal operations as well as access to information i.e. services provided by library with in the four walls and outside the four walls using library technology & software.

Recent trends of library automation with the delivery of digital content such as portal, link resolvers for e-resource, metadata search interfaces, integration with web environment and integration of library systems with learning management systems. Researcher surveyed and collected data for status of library automation which is depicted in from the following table:

Library Automation	Govt.	Autonomous	Private Aided	Private Unaided	Total
Fully Automated	01	03	01	02	07
Partially Automated		01		02	03
Not Automated	0	0	0	0	0
Total	01	04	01	04	10
Test Statistic	t Stat = 1.643989873, t Critical two-tail = 4.30265273				
Sig.	t Stat = 1.643989873 < 4.30265273, null hypothesis failed to reject. Statistical variation is not observed. There is no association/difference among the library automation of different college libraries affiliated to MAKAUT.				

It is revealed from table 03 that 07 (70%) college libraries are fully automated followed by 03 (30%) college libraries are partially auto mated. From the analysis it is inferred that t Stat = 1.643989873 < 4.30265273, null hypothesis failed to reject. Statistical variation is not observed. There is no association/difference among the library automation of different college libraries affiliated to MAKAUT.
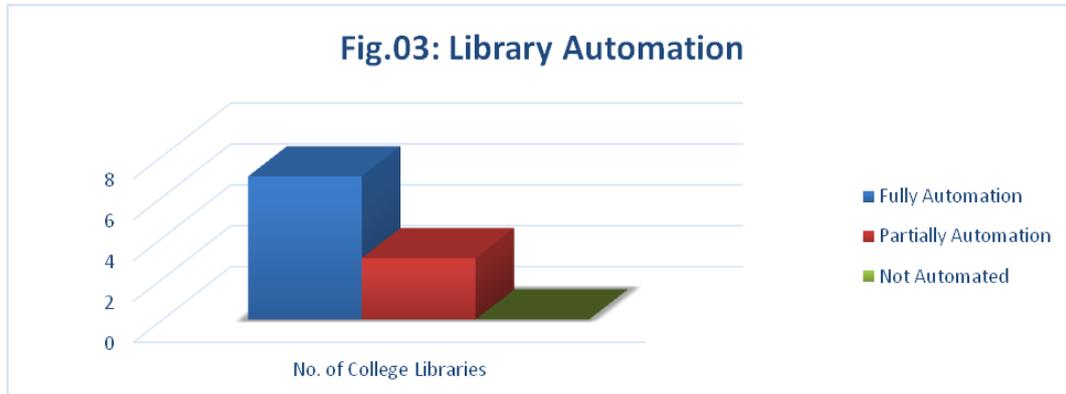
Tabulated data can be presented in the following figure:

Fig.03 Shows Library Automation of various Types of College Libraries affiliated to MAKAUT.

College libraries are using various software which are depicted in the following table 04:

Software Used in Libraries	Govt.	Autonomous	Private Aided	Private Un-aided	Total
KOHA	01			01	02
LIBSYS		03	01	03	07
In-House		01			01
Test Statistic	t Stat = 1.79605302, t Critical two-tail = 4.30265273				
Sig.	t Stat = 1.79605302 < 4.30265273, null hypothesis failed to reject. Statistical variation is not observed. There is no association/difference among the library software of different college libraries affiliated to MAKAUT.				

It is clear from table04 that 07(70%) college libraries are using LIBSYS library software followed by 02(20%) college libraries are using KOHA library software, 01 (10%) college library is using In-Housed library software. From the analysis it is inferred that t Stat = 1.643989873 < 4.30265273, null hypothesis failed to reject. Statistical variation is not observed. There is no association/difference among the library software of different college libraries affiliated to MAKAUT.

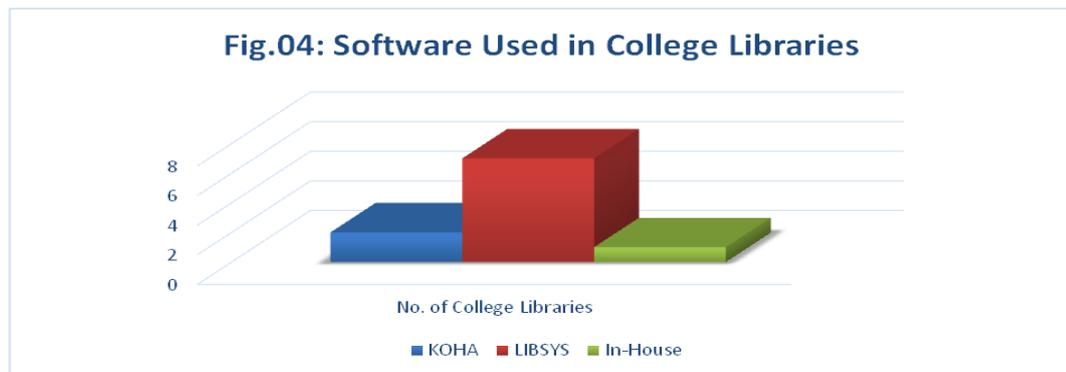Tabulated data can be presented in the following figure:

Fig.04 Shows Software Used in College Libraries affiliated to MAKAUT.

The following table 05 Shows the OPAC/Web OPAC Used of College Libraries:

OPAC/Web OPAC	Govt.	Autonomous	Private Aided	Private Unaided	Total
Outstanding	01	03	01	04	09
Excellent		01			01
Very Good					
Good					
Fair					
Poor					
Total	01	04	01	04	10
Test Statistic	t Stat = 1.129384879, t Critical two-tail = 2.570581836				
Sig.	t Stat = 1.129384879 < 2.570581836, null hypothesis is failed to reject, statistical variation is not observed in the data. There is no significant association/ difference among the OPAC/Web OPAC of different college libraries.				

It can be observed from the table 05 that 09 (90%) college libraries have outstanding performance of OPAC/Web OPAC followed by 01 (10%) college library has excellent performance of OPAC/Web OPAC. From the analysis it is inferred that t Stat = 1.129384879 < 2.570581836, null hypothesis is failed to reject, statistical variation is not observed in the data. There is no significant association/ difference among the OPAC/Web OPAC of different college libraries.

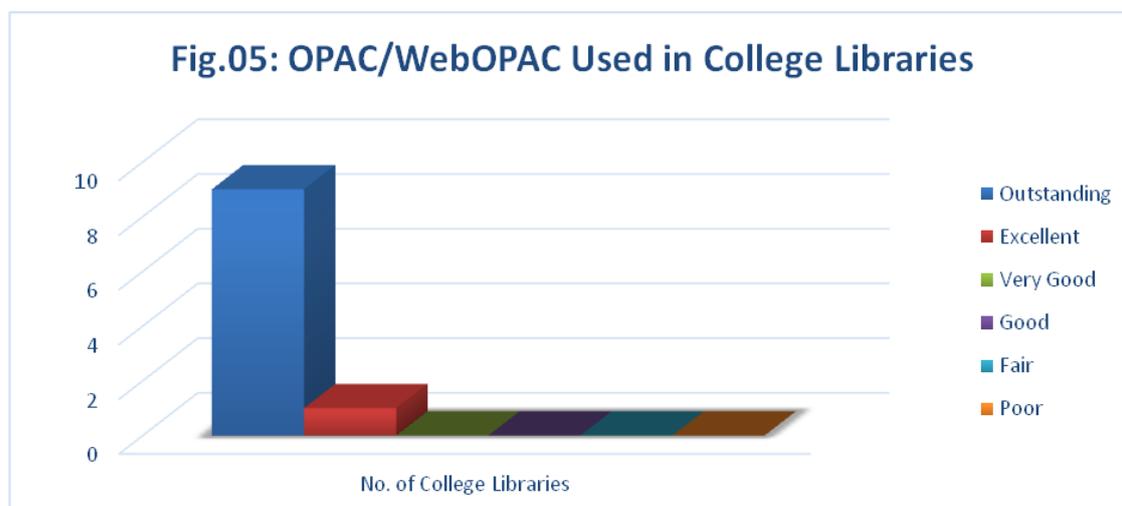Tabulated data can be presented in the following figure:

Fig.05 Shows OPAC/Web OPAC Used in College Libraries affiliated to MAKAUT.

RFID Technology Used in College Libraries:

Now a day's libraries are also using RFID Technology for various purposes such as Inventory, Security & Surveillance, Transaction & its accuracy, check in & check out, Automating Identification of books/ users details, Usage of drop box outside the library for returning the books. Out of 10 college libraries only 03 (30%) libraries are using RFID Technology in their libraries which is depicted in the following table:

	Govt.	Autonomous	Private Aided	Private Un-aided	Total
RFID Used in Libraries	01	01	0	01	03

RFID Not Used in Libraries		03	01	03	07
Total	01	04	01	04	10
Test Statistic	t Stat = 2.5, t Critical two-tail = 12.70620474				
Sig.	t Stat = 2.5 < 12.70620474, null hypothesis failed to reject. Statistical variation is not observed in the data. There is no significant association/ difference among the RFID Technology of different college libraries.				

It can be observed from table 06 that 03(30%) college libraries are providing services through RFID followed by 07 (70%) college libraries are not providing RFID Technology services. From the analysis it is inferred that t Stat = 2.5 < 12.70620474, null hypothesis failed to reject. Statistical variation is not observed in the data. There is no significant association/ difference among the RFID Technology of different college libraries.

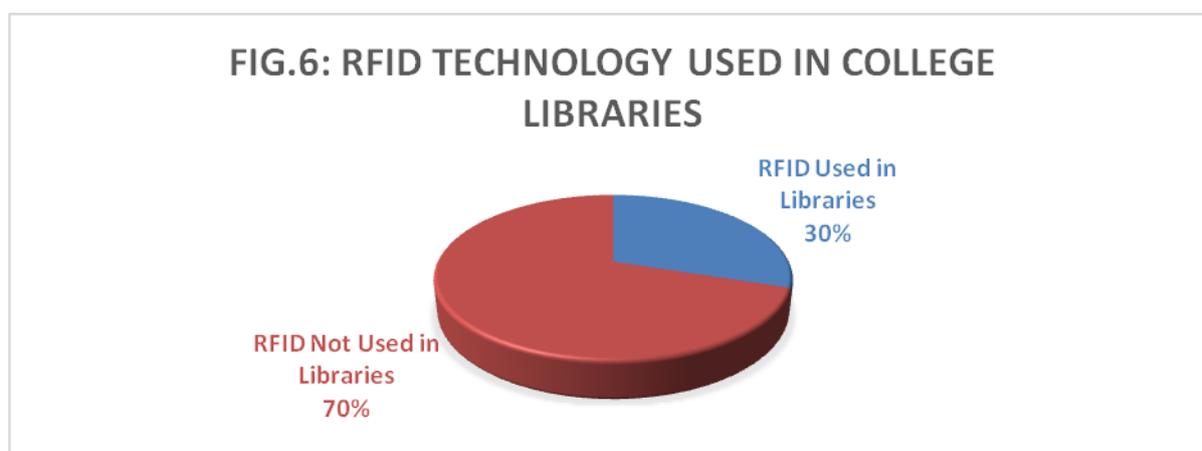Tabulated data can be presented in the following figure:

Fig. 06 Shows 30% College Libraries Are Using RFID Technology & 70% College Libraries are not Using RFID Technology affiliated to MAKAUT.

Digital Library

For digital library setup library have to acquire computers/electronics devices, software, databases, internet connectivity or online connectivity and professional experts so that user get their required information/materials timely. In the present study researcher collected data on digital library setup from 10 the college libraries affiliated to MAKAUT in the state of West Bengal. Data can be depicted in the following table 07:

	Govt.	Autonomous	Private Aided	Private Un-aided	Total
Digital Library/Section Present	01	04	01	02	08
Digital Library/Section Not Present				02	02
Total	01	04	01	04	10
Test Statistic	t Stat = 1.666666667, t Critical two-tail = 12.70620474				

Sig.	t Stat = 1.666666667 < 12.70620474, null hypothesis is failed to reject. Statistical variation is not observed. There is no significance difference among the digital library/digital section of various college libraries.

It is revealed from the table 07 that 08 (80%) college libraries are performing digital library services/ digital section services followed by 02 (20%) college libraries are not performing digital library services/ digital section services. From the analysis it is inferred that t Stat = 1.666666667 < 12.70620474, null hypothesis is failed to reject. Statistical variation is not observed. There is no significance difference among the digital library/digital section of various college libraries.

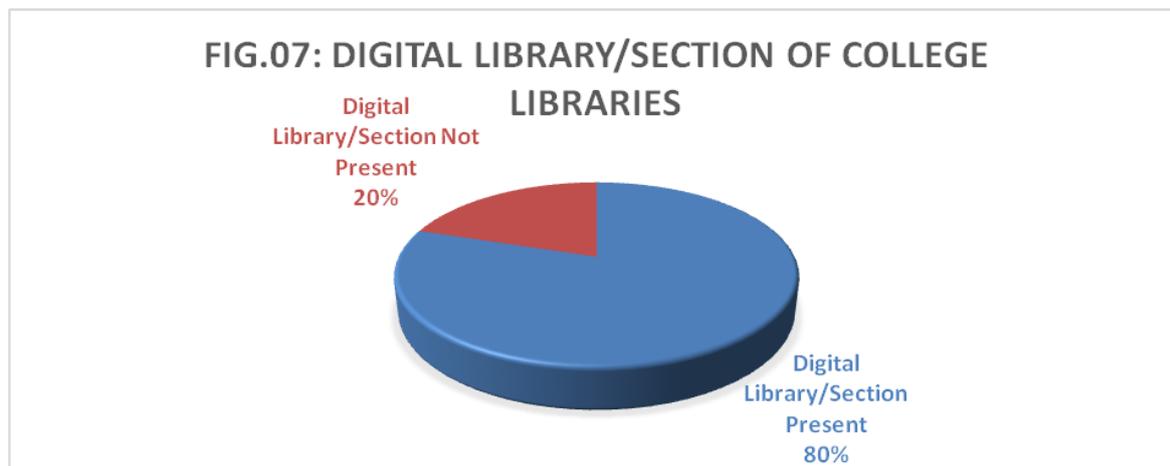Tabulated data can be presented in the following figure:

FIG.07: DIGITAL LIBRARY/SECTION OF COLLEGE LIBRARIES

Fig.07 Shows Digital Library/ Digital Section of College Libraries affiliated to MAKAUT.

Software Used in Digital Library in the following table 08:

Software	Govt.	Autonomous	Private Aided	Private Un-aided	Total
E-Library	01		01		02
D Space		02		01	03
Greenstone				01	01
In-House		01			01
Owned Software(Techfocuz)		01			01
Total	01	04	01	02	08
Test Statistic	t Stat = 4, t Critical two-tail = 2.776445105				
Sig.	t Stat = 4 > 2.776445105, null hypothesis rejected. Statistical variation is observed. There is a significance difference/association among the various digital library software of different college libraries.				

It can be observed from table 08 that 03 (30%) college libraries are using D space digital library software followed by 02 (20%) college libraries are using E-Library digital library software, 01(10%) college library is using Greenstone, In-House & Owned Software (Techfocuz) digital library software respectively. From the analysis it is inferred that t Stat = 4 > 2.776445105, null hypothesis rejected. Statistical variation is observed. There is a significance difference/association among the various digital library software of different college libraries.

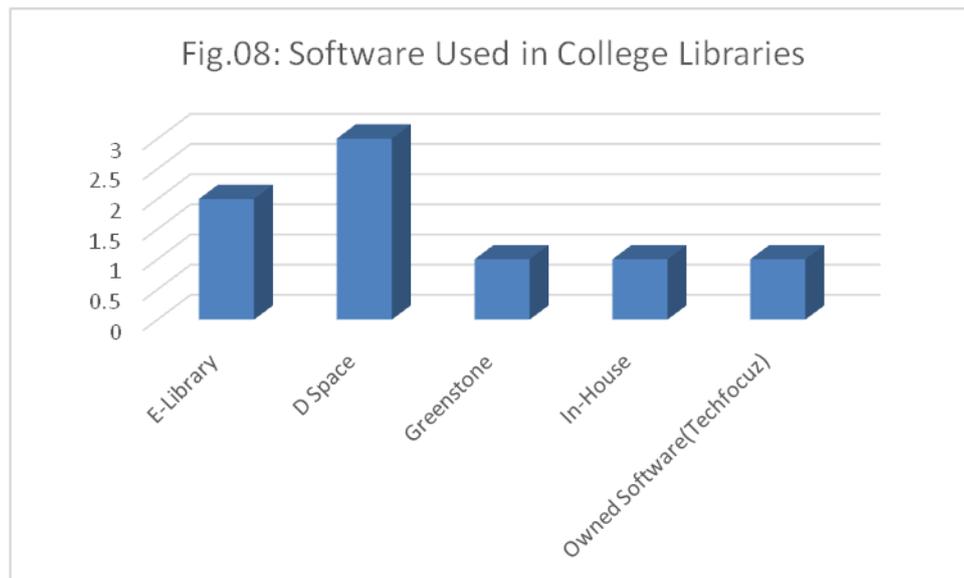Tabulated data can be presented in the following figure:

Fig.08 Shows Software Used in College Libraries affiliated to MAKAUT.

Application of Mobile Technology for Library Services

- Nowadays mobile phone is a common device which carry all the technical students, faculties, staffs and technical college libraries are also interested in providing their library services through mobile phone. So library authority provides a unique user name and password to use library e-resources of their users.

- Mobile phone facilitates their services hrough global system of mobile communication (GSM), so users can access require resources anytime, anywhere.

- Selected College libraries of MAKAUT provide SMS/notification to their users regarding new arrivals of reading materials & upcoming events of the college.

- Users can access full- text information such as e-books and e-journal articles on their mobile devices. These services collectively known as mobile library services.

Mobile Technology	Govt.	Autonomous	Private Aided	Private Unaided	Total
Wi-Fi		02			02
Mobile Web		01	01	02	04
Total		03	01	02	06
Test Statistic	t Stat = 3, t Critical two-tail = 12.70620474				
Sig.	t Stat = 3 < 12.70620474, null hypothesis failed to reject. Statistical variation is not observed. There is no significance difference between/among the Wi-Fi & Mobile Web of Mobile Technology of different college libraries.				

It is revealed from table 09 that 04 (40%) college libraries are using mobile web for Mobile Technology services followed by 02 (20%) college libraries are using Wi-Fi for Mobile Technology services. From the analysis it is inferred that t Stat = 3 < 12.70620474, null hypothesis failed to reject. Statistical variation is not observed. There is no significance difference between/among the Wi-Fi & Mobile Web of Mobile Technology of different college libraries.

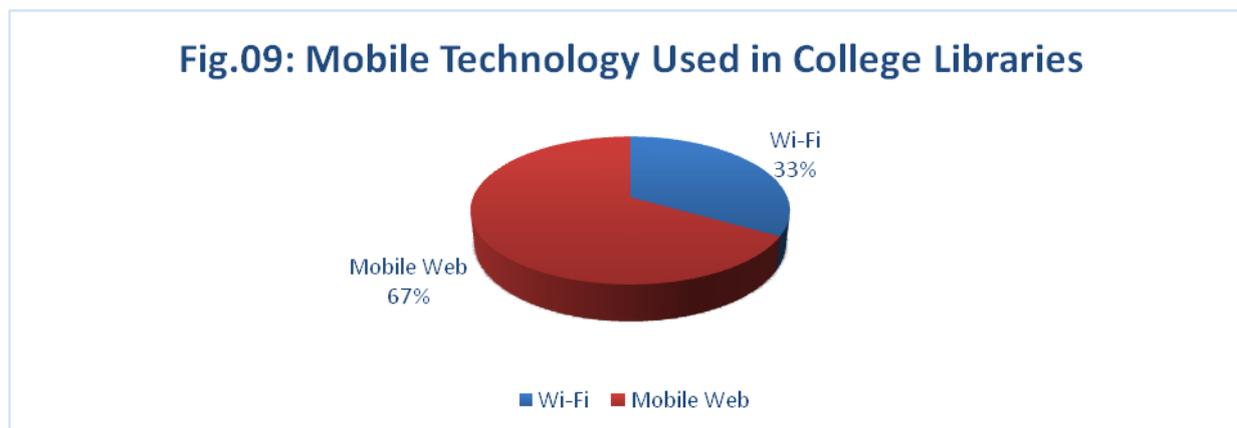Tabulated data can be presented in the following figure:

Fig.09: Mobile Technology Used in College Libraries

Fig.09 Shows that Mobile Technology Used in College Libraries through Mobile Web as well as Wi-Fi.

Table 10 shows Library Users Frequently Visit the Library

	Daily	Alternative Days	Twice a Week	Weekly	Fortnightly	Total
Govt.	19	15	10	8	6	58
Govt. Autonomous	20	17	9	7	5	58
Private Autonomous	30	25	19	11	10	95
Private Aided	11	9	6	2	1	29
Private Unaided	112	99	86	72	71	440
Total	192	165	130	100	93	680
Test Statistic	t Stat= 3.651483717, t Critical two-tail = 2.776445105					
Sig.	t Stat= 3.651483717 > t Critical two-tail = 2.776445105, null hypothesis rejected. Statistically variation is observed in the data of different college libraries. There is a significant difference/ association among the library user frequently visit the libraries of various college.					

Testing of Hypothesis:

Hypothesis 1: Based on the results obtained it was verified and found to be almost true vide table 01 and 08. In most of the college libraries of MAKAUT have Information Technology (IT) infrastructure facilities. Hence, the hypothesis statement stated above is accepted and proved.

Hypothesis 2: Based on the results obtained it was verified and found to be true vide table 01. In most of the college libraries of MAKAUT have provided e-resources facilities. Hence hypotheses statement stated above is accepted and proved.

Hypothesis 3: Based on the results obtained it was verified and found to be true vide table 10. Users' opinion on the use of ICT in technical college libraries is satisfactory. Hence hypotheses statement stated above is accepted and proved.

FINDINGS

In the present study findings from the data presentation, analysis and interpretation of results related to the collection development of resources & their usages, services, various activities of libraries & library professionals of the college libraries affiliated to MAKAUT. Apart from these levels of satisfaction of users are also taken into consideration.

The following information has been drawn from the present study:

- Every technical college has a separate library premises or some library have separate libraries buildings for offering their services to the end users.

- The allocation of library funds is acquired from the state government, students during the time of admission each year.

- The duration of convenient working hours in a day is 8 hours for most of the college libraries and some libraries have additional working hours during holidays.

- All technical college libraries allocate the maximum amount of budget for the purchase of printed books, journals, newspapers, magazine, E-Books, E-Journals, computers, software, electronic gadgets and other accessories.

- A good number of technical colleges have qualified librarians.

- Out of 10 librarians 6 (60%) librarians are male & 4 (40%) librarians are female.

- All technical college libraries have an adequate number of printed books, journals, magazines and newspapers.

- All the technical college libraries have e-resources collection such as e-books, e-journals, databases, IR, etc.

- All the users of the college libraries have a user ID/Password option for access to e-resources within the campus or some college libraries provide facilities to access information from anywhere any place.

- Respondents stated that except OPAC/web OPAC services and automated circulation services, other e-services are not satisfactory to them.

- Barcode Readers/Scanners are used all the college libraries from the range 2 to 4.

- Among 10 college libraries 7 college libraries are fully automated, 3 college libraries are partially automated.

- Majority of the libraries i.e., 7 (70%) are using commercial software LIBSYS, 2(20%) libraries are using open source software KOHA & 01 (10%) library is using In-House library software for library house-keeping operations.

- All college libraries are using a computerized catalogue i.e., OPAC/Web OPAC.

- Out of 10 college libraries 03 libraries are using RFID Technology for security, improve service quality, cost savings & available 24/7.

- Out of 10 college libraries 08 college libraries have a digital section/ digital library.

- 03 libraries are using D space, 02 libraries are using E-library, 01 library is using Greenstone, In-house & Techfocuz digital library software for creating institutional repositories.

- Out of 10 college libraries 06 libraries are using Mobile Technology; 02 libraries are providing mobile library services through Wi-Fi facilities and 04 libraries are providing mobile library services through mobile web.

RECOMMENDATION

On the basis of findings following recommendations may be considered for the use of IT in the college libraries affiliated to Maulana Abul Kalam Azad University of Technology (MAKAUT) under study.

- Infrastructure: Now a day's the library has transformed into a hybrid in nature. The library should have adequate infrastructure for the smooth running of each section of a modern library such as circulation section, digital section/e-corner/e-zone, reprographic section, journal section etc.
- Financial Assistance: The college authority should be positive-minded, not apathetic for the upgradation of libraries, they should allocate sufficient funds and budgetary provisions for strengthening collection development, procuring electronic gadgets in their libraries.
- Trained Staff: Library professional should change their attitudes & work patterns because libraries are shifting from traditional to hybrid. Librarian/ Library professional need orientation/training, and workshop program from time to time for their upgradation.
- User Satisfaction: The ultimate motto is the user satisfaction of the college library. The librarian meets the users' varied demands, and arranged user awareness programs, and training programs from time to time in the library.
- Price of IT Tools: Increasing price of IT tools such as computers, barcode scanners/barcode readers, library software, printers & other accessories, etc. To handle IT tools, need experienced & skilled library staff.
- Resource Sharing: Optimum use of resources with minimum cost is the main motto of a librarian, so it is suggested that instead of individuals subscribing to e-documents, databases, a cost-effective model on e-resources may be initiated by the college libraries affiliated to MAKAUT so that a maximum number of e-contents can be shared and use among the libraries' list costs.

CONCLUSIONS

The present study draws a mixed picture of the development or progress of IT & its use in library for the pattern of e-resources, usages of e-resources & provide the services to the end user in the digital environment with the help of the library software, barcode readers/scanners, and RFID technology. Information Technology development in the college library is the need of the hours. It is clear from the study college librarians select various IT tools & technologies which are recommended by the library committee or library advisory committee of the college & cost of IT tools & technologies which will be used for the library. College librarians arrange in-house training programs/workshops for their staff to upgrade their skills, technical knowledge & competences.

Technical college libraries are facing challenges due to cuts in library budgetary provisions, reduced library staff, devaluation of money, the apathetic mind of authorities & escalation in the cost of publication, etc. So technical college libraries are facing difficulties in buying various IT tools. IT tools & technologies have appeared in libraries with many advantages such as reducing space problems, offering remote access to information, cost-effectiveness

with long-term benefits, upgrade knowledge with accurate and faster access to information. IT has created a revolution in technical college libraries. They developed many schemes for optimum use of library resources through consortia. Users of technical college libraries are more prone to access e-resources than using traditional printed materials. Library professionals shall be more efficient in selecting, and managing IT tools, and usages of IT tools in a digital environment to overcome all the barriers during implementation of IT tools in the technical college libraries.

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