Utilization of e-Resources at Technical Information Centers (Library) of Defence Research & Development Laboratory (DRDL), Hyderabad.

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Abstract - *Electronic resources provide access to information that might be restricted to the user because of geographical location or finances. Electronic resources also provide access to current information as these are often updated frequently. The present study is Utilization of e-Resources at Technical Information Centers (Library) of Defence Research & Development Laboratory (DRDL), Hyderabad. It is intended to assess the type of e-resources used by the scientists and technical staff, purpose of visit to library, amount of time spent in using them, satisfaction with print and e-resources, adequacy of library collection obtained in accessing them. It is observed that ehe majority (88.78%) of the respondents are male respondents and (21.22%) are female respondents. Overall scientists are 245(59.76%) and 165(4.24%) are technical staff. And found that 98(23.90%) of the respondents are expressed their opinion that they visit library for 'digital library' and for technical reports.'*

Keywords: E-resources, E-Journals, Defence Research & Development Laboratory, DRDL,Technical Information Centers, User studies.

INTRODUCTION

Research is an intellectual activity of gathering information needed to solve a problem, which in turn contributes significantly towards innovation, technical change and nation's progress. The universities and Research and Development centers are the key centers of higher education, training and research. The defense research libraries play an important role for developing innovative research in R & D and their scientists/research staff are the users of pinpointed, exhaustive and up to date information. The electronic or digital information resources are increasingly becoming available due to application of information and communication technologies. As a result, the use of electronic resources particularly, the use of back issues of scholarly journals in electronic format is growing more rapidly indicating a shift in user's preferences towards electronic resources.

Technology has become an integral part of higher education instruction. With increased usage of instructional technology, web-based instructional resources like the electronic textbooks are slowly making their way into the higher education system. Electronic information resources offers today's student new opportunities that were not available to

previous generations. Liew et al (2000) argue that while reading an e-journal is not the same as reading a printed issue, many students now acknowledge that electronic documents offer users advanced features and novel forms of functionality beyond those possible in printed form.

Electronic resources are valuable research tools which complement print based resources in any traditional library. Electronic resources provide access to information that might be restricted to the user because of geographical location or finances. Electronic resources also provide access to current information as these are often updated frequently. Through their various search techniques, electronic resources provide extensive links to explore additional resources or related content. In addition, electronic resources are convenient to use since users are able to access information from the library. It is for these reasons, electronic resources are considered as an important resource of teaching, research and training. Thus, most of libraries as well as the universities of the present day provide electronic resources for higher education and research. The present study is Utilization of electronic resources at the Technical Information Center (TIC) of Defence Research & Development Laboratory (DRDL), Hyderabad.

REVIEW OF LITERATURE:

Anjaiah and Saravana (2013) survey explores the use of E – Resources by the faculty members and student community of Kuppam Engineering College Library, Kuppam. The Survey shows that the majority 72% users are using e-journals, 46% of them are using e-books and 76% of users are using e-resources to obtain subject knowledge. **Singh and Khan (2015)** have state that Information Communication Technologies (ICT) have tossed forward new difficulties before the library experts. The innovation greatly affects the administrations of the libraries. In the present study, an endeavour has been made to investigate value of electronic assets and clients abilities in utilizing different pursuit routines and strategies to get to and use e-assets in Indian Institutes of Technology Delhi, Kanpur and Roorkee, India. **Adhikari (2017)** In the digital era, research scientists are predominantly dependent on electronic resources (e-resources) to fulfill their information needs. Consortia have facilitated access to numerous electronic information resources in S&T institutions. The DST, Government of India supports 20 autonomous R&D institutions that have access to information resources through a consortium. This paper studies the electronic resource use pattern by DST institutes. Institutional downloads are given and the leading publishers relevant to the institutions are listed. Finally, for better utilization of e-resources, an information filtration model has been proposed. **Bhat, Nazir Ahmad; Ganai, Shabir Ahmad (2017)** study were to assess the level of user satisfaction with regard to the following types of Electronic Information Resources (EIRs) relevant to agriculture and allied disciplines, viz. Indexing and Abstracting (I&A) Databases; e-Journals; e-Books; and e-Theses. Seven universities were surveyed using a questionnaire for collecting data. The level of users' satisfaction has been measured using a five point Likert scale. A great majority of respondents are satisfied about the availability of e-abstract databases (87.92%) and e-journals (89.67%). **Karthiban and Anjaiah (2018)** study is to examine the awareness and effective utilization of UGC-Infonet e-Journals Digital Library Consortium by faculty members and research scholars of University of Kerala, Kerala. The data were collected using   a structured questionnaire. The study found that a large majority 67.% of the respondents belongs to male, 89.4% of respondents are aware of UGC-Infonet e-Journals Digital Consortium, 52.8% used UGC-Infonet e-Journals on an everyday, 33.3% percent of respondents access the e-resources from their respective departments, about 30.9% of

respondents access from university libraries, 48% of respondents use Infonet e-Journals for research purpose, followed by 36.6% of respondents use to update their for subject knowledge, 69.9% percent of respondents are fully satisfied with the existing availability of e-journals.

Defence Research & Development Laboratory (DRDL) was set up 1962 to meet the complex metallurgical requirements of sophisticated weapon systems. It has developed expertise in advanced materials characterization and development, process engineering and performance analysis

TECHNICAL INFORMATION CENTRE (LIBRARY)

The DRDL TIC was established in the year 1962-63 to cater for the information needs of personnel of DRDL. The collection of TIC is mainly on aerospace based literature in the form of text books, journals, technical reports, standards, specifications, microforms, CDROMs and video cassettes. The task of TIC is to collect, process, preserve and disseminate the technical information.

TICs aims is to provide the unified and focused strategic leadership needed to address the demands, provide strategic leadership for collaboration between publicly funded research information providers and their users to develop effective, efficient and integrated information resource and services to support defence research. Coordinate action to propose and specify solutions to meet researchers changing needs. Act as a high level advocate for research institutions across the DRDO. Early emphasis is likely to be on improved knowledge and access to existing resources for example by developing search tools and union catalogues which give a single point of access to number of different collections. Future potential work streams include collaborative work on developing and preserving digital archives, maximizing access for professional researchers to key collectors, and working towards collaborative development of collecting to ensure access to the widest possible ran of research materials. Analysing and designing a library information system aims at enhancing patron satisfaction by providing just-in-time access to appropriate information' (Indira, 2004). The system of TICs, try to use all possibilities to ensure scientific researchers, specialists with required information.

DIGITAL INFORMATION CENTRE:

The purpose of any digital library is to provide seamless access to mostly digital information that is available in a particular library utilizing IT gadgets. The TIC has been providing services from CDROMs of standards such as ASTM; BSI; EIA/TIA, IEC, Indian Standards, ISO, ITU, MIL Specifications, MODUK, NASA, SAE etc. Providing access to the table of contents of journals, full text document of missile specifications from missile forecast International and other indexing services. Digital information services, meeting the requirements of projects and technology directorates by providing hard copies of the standards.

OBJECTIVE OF THE STUDY:

- To know the number of hours spent by the users on using e-resources;
- To study the purpose of visit to the library;

- To assess the type of e-resources used;
- To know the satisfaction level of library collection

METHODOLOGY:

Survey method of research has been used in the present study. A questionnaire was designed for collection of data from Scientists and Technical staff of DRDL Technical Information Center. As the respondents were highly conversant with english languages, questions were prepared in english language and also questions were prepared in a very simple language so that the users could understand them easily and could answer them within 30 minutes. The questions were of the type of specific informative, which call for a specific item of information or questions with yes or no answers or multiple answers. There were 457 scientists and technical staff in DRDL total questionnaire distributed to 450 scientist and technical staff, and responses collected were 410 and response rate was 91%. The collection of the data and the results are shown in tables, the study is limited to the Scientist and Technical Staff of DRDL only.

DATA ANALYSIS:

Gender and designation wise profiles

Table-1: Demographic profile of the respondents

S.No.	Gender	Scientists	Technical Staff	Total	%
1	Male	187(57.89%)	136(43.11%)	323	78.78
2	Female	58(66.67%)	29(33.33%)	87	21.22
Total		245(59.76%)	165(40.24%)	410	100

The above table-1 shows the gender and designation wise distribution of the respondents. The sample out of 410 respondents 323(78.78%) are males among this 187(57.89%) are scientists and 136(43.11%) are technical staff, following 87(21.22%) female respondents among this 58(66.67%) of the respondents are female scientists, remaining 29(33.33%) are female technical staff. Majority 323(78.78%) of the respondents are male respondents and 87(21.22%) are female respondents. Overall scientists are 245(59.76%) and 165(4.24%) are technical staff.

Time during visit to library per day

Table-2: Time spent in the library

S.No.	Time spent	Male	Female	Total	%
1	Less than 1 hour	16	12	28	6.83
2	1 hour	96	16	112	27.32
3	2 hours	113	34	147	35.85
4	More than 2 hour	98	25	123	30
	Total	323	87	410	100

As per the above table-2 it shows that majority of the respondents 147(35.85%) have indicated they Spent 2 hour time in the library, following 123(30%) respondents expressed

that they use library more than 2 hours, 112(27.32%) of the respondents indicated 1 hour and remaining 28(6.83%) of the respondents expressed their opinion that they spent less than 1 hour in the library.

Purpose of visit to the library (TIC)

Table-3: Purpose of visiting the TIC

S.No.	Purpose	No. of respondents	%
1	digital library	98	23.90
2	Refer books	41	10
3	Refer Journal & Magazines	96	23.41
4	Refer e-databases	77	18.78
5	Technical reports	98	23.90
	Total	410	100

Table-3 reveals that 98(23.90%) of the respondents are expressed their opinion that they visit library for 'digital library' and for technical reports, following 96(23.41%) of the respondents visit for 'refer journal & magazines' 77(18.78%) of the respondents visit for to 'refer e-databases' and 41(10%) of the respondents expressed their opinion that they visit for library for to 'refer books'.

Use of print and electronic resources:

Table-4: Type of material using

S.No.	Print resources	No. of respondents (N=410)	%
1	Books	54	13.17
2	Journals	148	36.10
3	Standards	67	16.34
4	Project Report	129	31.46
5	Micro Forms	12	2.93
E-resources			
1	E-Books	36	8.78
2	E-Journals	183	44.63
3	E-Databases	139	33.90
4	Audio-Visual/CD-DVD	52	12.68

It indicates from the above table-4 that use of print resources and e-resources, out of 410 respondents 148(36.1%) use print 'Journals', 129(31.46%) of the respondents use 'Project Report', 67(16.34%) use 'Standards', 54(13.17%) use printed 'Books' and 12(2.93%) of the respondents use 'Micro Forms' in case of electronic version of resources 183(44.63%)   of the respondents use 'E-Journals', 139(33.9%) use 'E-Databases', 52(12.68%) use 'Audio-Visual/CD-DVD' and finally very few 36(8.78%) of the respondents use 'E-Books'.

Use of Databases

<div align="center">Table:5 Use of e-databases</div>

Databases	No. of respondents	%	Databases	No. of respondents	%
AGMA	12	2.93	GOST	9	2.20
AIAA	16	3.90	IEC	12	2.93
AIA-NAS	8	1.95	IEEE	28	6.83
API	10	2.44	IPC	11	2.68
ASME	24	5.85	ISO	24	5.85
ASTM	20	4.88	ITU-R	13	3.17
AWS	18	4.39	ITU-T	10	2.44
BIS	22	5.37	JDEC	17	4.15
BSI	10	2.44	JSS	8	1.95
CEA	16	3.90	MODUK	6	1.46
CGA	8	1.95	MSS	12	2.93
DIN	12	2.93	NASA	29	7.07
ECA	5	1.22	OJSD	10	2.44
ECSS	8	1.95	SAE	9	2.20
EIA	10	2.44	STANAG	6	1.46
GEIA	7	1.71	**Total**	**410**	**100**

Table-5 indicates the use of e-databases, Out of the 410 respondents the majority of the 29(7.07%) uses NASA database, following 28(6.83%) of the respondents uses IEEE database, 24(5.85%) of the respondents uses ASME and ISO databases, 22(5.37%) uses BIS database, 20(4.88%) uses ASTM database, 18(4.39%) uses AWS database, 17(4.15%) uses JDEC database, 16(3.90%) uses AIAA and CEA databases, 13(3.17%) uses ITU-R database, 12(2.93%) uses AGMA, DIN, IEC and MSS databases, 11(2.68%) uses IPC database, 10(2.44%) uess API, BSI,EIA, ITU-T and OJSD databases, 9(2.20%) uses GOST and SAE databases, 8(1.95%) uses AIA-NAS, CGA, ECSS and JSS database, 7(1.71%) uses GEIA database, 6(1.46%) uses MODUK and STABAG databases and very few 6(1.46%) of the respondents uses STANAG database, and 5(1.22%) uses ECA database.

Satisfaction about the library collection

<div align="center">Table-6: Satisfaction with library collection</div>

S.No.	Level of Satisfaction	Scientists	Technical Staff	Total	%
1	Strongly Agree	133	126	259	63.17
2	Agree	31	118	149	36.34
3	Disagree	1	1	2	0.49
4	strongly Disagree	0	0	0	0
5	Can't say	0	0	0	0
	Total	165	245	410	100

Table-6 shows the satisfaction about the library collection, out of 401 scientists and technical staff, 259(63.17%) of the scientists (133) and technical staff (126) expressed their opinion 'strongly agree' with the library collection. Among 149(36.34%) respondents scientists (31)

and technical staff (118) expressed their opinion 'agree' with collection, remaining 2(0.49%) of the respondents expressed 'disagree' with the library collection.

FINDINGS:

- The majority (78.78%) of the respondents are male respondents and (21.22%) are female respondents. Overall scientists are 245(59.76%) and 165(4.24%) are technical staff.
- It is observed that majority of the respondents 147(35.85%) have indicated they
- Spent 2 hour time in the library, following 123(30%) respondents expressed that they use library more than 2 hours, 112(27.32%) of the respondents indicated 1 hour and remaining 28(6.83%) of the respondents expressed their opinion that they spent less than 1 hour in the library.
- It is found that 98(23.90%) of the respondents are expressed their opinion that they visit library for 'digital library' and for technical reports.
- It is found that out of 410 respondents 148(36.1%) use print 'Journals', and 183(44.63%) of the respondents use 'E-Journals' hence it indicates that most of the them using 'journals' for their research.
- Out of the 410 respondents the majority 29(7.07%) of the respondents uses NASA database.
- It is observed that out of 410 scientists and technical staff, 259(63.17%) of the scientists (133) and technical staff (126) expressed their opinion 'strongly agree' with the library collection.

CONCLUSION:

The e-resources in DRDL Technical Information Center act as microscope and a telescope for scientist and technical staff facilitating both deep and narrow searches of core content and broad searches that cover the periphery of subfields and distinct disciplines. Majority of the users are using the print as well as electronic journals for their research purpose. Providing the acquisition of e-resources in the TICs enhance the study and research of the laboratories of Defence as well as the nation. E-resources are popular in the midst of all the electronic resources for its uniqueness and facet. Day by day the demand for e-resources requirement is increasing. Research centers needs to allot more funds towards procuring these e-resources to satisfy the needs of the scientists. Simultaneously libraries need to take the feedback and suggestions from the users what type of e-resources to be subscribed.

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