

A Study on Information Seeking Behavior among the Scientists in Defence Avionics Research Establishment

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Abstract - The present study discusses the attitude of information seeking behavior among the scientists of Defence Avionics Research Establishment. The study describes about the scientists those who are involved in the research of Airborne Electronic Warfare, Airborne Processors and Testing & Evaluation of Electronic Warfare (EW) systems and their persuasiveness towards electronic information resources, level of satisfaction, and barriers in all aspects of using electronic resources. For the purpose of the study seventy two scientists listed category-wise were determined as the sample through purposive sampling technique. The primary data were collected through questionnaire survey and thus collected data were analyzed using statistical tools.

Keywords: Information Seeking Behavior, Electronic Resources, Scientists, Information Needs, DARE

I. INTRODUCTION

In the modern technology of today, information is parsimonious interlocked with growth and development which is reflected in many ways such as growth of economic, scientific research, social, occupational, and cultural environment. The information seeking behavior enables the people to locate the availability of information, aims to satisfying their needs and expectations. In this context the study analyzes the level of utilization, scientists' user behavior, and purpose of using electronic information by the scientists. According to the theory of Crawford (1978) states that information involves cognitive process which may operate different levels of consciousness and hence may not be clear to the inquirer in the present context, information is a commodity which is used to satisfy the needs therefore, the concept of needs should be conceptualized. Electronic information is an integrated part of any research and retains more than through the print sources.

II. REVIEW OF LITERATURE

Since then various quantitative studies have been conducted on usage of electronic resources by the scientists in various fields.

Bharadwaj (2016) explains about information seeking behavior in the electronic environment. In his study attempt the process of information need, what are the factors influencing the human seeking behavior while using

electronic resources. The study concluded the users' information seeking behavior in the electronic environment is very fast and fulfilled their necessity.

Susan (2017) conducted a comparative study between the engineers and scientists with the information seeking behavior. In this comparison, the study is about the exploration into the information-seeking behaviors of engineers and scientists. The study covers the needs of information; searching techniques are both similar between the engineers and scientists and also found the significant difference between the usage of online search engine functionality by both scientists and engineers.

Gordon *et al.*, (2018) in his study discusses the information seeking behaviors' attitudes and choices of academic chemists. The study classified the academic chemists into three groups based on their attitudes. The majority of scientists belong to faculty and doctoral students. The study concluded that the significant number of chemists continuous to be anxious about their ability to remain in control of their information needs and also most chemists failed to know about the importance of patient information.

III. DEFENCE RESEARCH & DEVELOPMENT ORGANISATION (DRDO)

Defence Research & Development Organisation (DRDO) works under Department of Defence Research and Development of Ministry of Defence. DRDO dedicatedly working towards enhancing self-reliance in Defence Systems and undertakes design & development leading to production of world class weapon systems and equipment in accordance with the expressed needs and the qualitative requirements laid down by the three services.

DRDO is working in various areas of military technology which include aeronautics, armaments, combat vehicles, electronics, instrumentation engineering systems, missiles, materials, naval systems, advanced computing, simulation and life sciences. DRDO while striving to meet the Cutting edge weapons technology requirements provides ample spinoff benefits to the society at large thereby contributing to the nation building.

IV. DEFENCE AVIONICS RESEARCH ESTABLISHMENT (DARE)

Defence Avionics Research Establishment initially started as a Project Laboratory under DRDO as Advanced Systems Integration and Evaluation Organisation (ASIEO), which was established in 1986 at Bangalore to pursue the goal of enhancing the operational capabilities of Indian Air Force through modern technologies. Over the last decade, DARE has made rapid progress in the areas of Airborne Electronic Warfare, Airborne Processors and Testing & Evaluation of Electronic Warfare (EW) systems. DARE has two major wings - the Electronic Warfare wing and the Mission Avionics Wing. It has implemented concepts in concurrent engineering in partnership with the Industry in order to achieve shorter design to induction time frames and seamless transfer of technology.

V. NEED AND PURPOSE OF THE STUDY

The goal of DARE is enhancing the operational capabilities of Indian Air Force through modern technologies. Over the last decade, DARE has made rapid progress in the areas of Airborne Electronic Warfare, Airborne Processors and Testing & Evaluation of Electronic Warfare (EW) systems. For this purpose researcher aims to investigate information seeking behavior of scientific personnel, the role of electronic information resources among scientists and what are the preferred channels, sources and services for their information needs.

VI. OBJECTIVES OF THE STUDY

1. To identify the DARE scientists user behavior towards electronic environment.
2. To study the information needs and requirements of scientists of DARE.
3. To assess the DARE scientists' level of utilization and satisfaction level of electronic information resources.
4. To identify the constrictions faced by the scientists of DARE.

VII. METHODOLOGY

The present study is to analyze the approach of information seeking behavior among the DARE scientists. For the purpose of the study, 72 scientists from DARE Laboratory in Karnataka were selected as a sample for the study, through purposive sampling technique. The primary data were collected through questionnaire with five point likert scale. Thus collected data were analyzed using appropriate statistical tools.

VIII. RESULTS AND DISCUSSIONS

In the table I given is a detailed report of the questionnaire survey with respect to response rates in each category. The

response rate is 72 (100%). The results shows gender variables which are to be considered when participation of male and female as scientists is to be analyzed. The results indicates that the male scientists 54 (75%) were high compared to the female scientists 18 (25%). There is larger variation between the surveyed scientists among the category-wise gender. The results indicated the overall participants of them in the study were male scientists.

TABLE I CATEGORY – WISE GENDER

S. No.	Particulars	Gender		Total	%
		Male	Female		
1.	G category	4 66.6%	2 33.3%	6	100
2.	F category	9 64.2%	5 35.7%	14	100
3.	E category	12 70.5%	5 29.4	17	100
4.	D category	16 80.0%	4 20.0%	20	100
5.	C category	8 98.0%	1 1.1%	9	100
6.	B category	5 83.3%	1 16.6%	6	100%
Total		54	18	72	100%

TABLE II DEMOGRAPHIC DETAILS OF THE STUDY

S. No.	Category	Age	Educational Qualification	Experience
1.	G category	51-58	PG	More than 30 years
2.	F category	40-57	UG, PG	More than 25 years
3.	E category	35-45	UG, PG	More than 15 years
4.	D category	31-56	UG, PG	More than 25 years
5.	C category	31-40	UG	More than 10 years
6.	B category	27-28	UG	Minimum 2 years

Table II shows various variables of participating scientists at Defence Avionics Research Establishment in different categories. The seventy two scientists comprise a group classified into six categories based on their designation. The scientists of G category belongs to Group Directors between the age group of 51-58years with post graduate having up to 30 years of experience followed by F category belonging to Project Directors between the age group of 40 –57 years with more than 25 years of experience.

The scientist C category belongs to Project Coordinators between the age group of 31-40 years with under-graduate and more than 10 years of experience followed by B category scientists were of 27-28 years with under-graduate and minimum 2 years of experience.

TABLE III USAGE OF ELECTRONIC RESOURCES BY THE SCIENTISTS

S. No.	Resources	Usage of Resources				
		SDA	DA	Neutral	A	SA
1	IEEE	0(0.0%)	0(0.0%)	11(15.3%)	27(37.5%)	34(47.2%)
2	ASME	0(0.0%)	0(0.0%)	7(9.7%)	30(41.6%)	35(48.1%)
3	JCC	0(0.0%)	2(2.7%)	5(6.9%)	34(47.2%)	31(43.0%)
4	Elsevier/Science Direct	0(0.0%)	0(0.0%)	0(0.0%)	30(41.6%)	42(58.3%)
5	IHS Jane's	6(8.3%)	10(13.8%)	17(23.6%)	17(23.6%)	22(30.5%)
6	T&F	0(0.0%)	0(0.0%)	0(0.0%)	59(81.9%)	13(18.0%)
7	DRDO e- journal portal	0(0.0%)	0(0.0%)	9(12.5%)	14(18.2%)	49(68.0%)
8	DRDO Institutional Repository	0(0.0%)	0(0.0%)	17(23.6%)	23(31.2%)	32(44.4%)
9	Archives of E- journal	2(2.7%)	2(2.7%)	6(8.3%)	19(25.1%)	43(59.7%)
10	DRDO Shodkosh	4(5.5%)	5(5.5%)	8(11.1%)	33(45.8%)	22(30.5%)

Table III shows the usage of electronic resources by the scientists. Out of seventy two respondents 68.0% were strongly agreeing that DRDO e-journal portal is highly usable followed by Archives of E-journal 59.7%. 81.9% of them were agreeing Taylor & Francis is usable. It is pertinent to mention here that IEEE, ASME, SCIENCE DIRECT was equally preferred for their research purpose. The result revealed that the electronic resources highly influenced the scientists for their research purpose.

TABLE IV DEMOGRAPHIC DIFFERENCE AMONG THE SCIENTISTS

Details	F	Sig
Age	4.878	.000
Educational qualification	4.880	.001
Year of experience	4.854	.007

Source: compiled from primary data

The above table shows the demographic profile of the scientists on the factors of usage of electronic resources for their personal and research activities through one way Anova. It was found that there was significant difference between the usage of electronic resources among the scientists who belongs to different age group ($p=0.000<0.05$) having different educational qualification ($p=0.001<0.05$), and among different years of experience ($p=0.007<0.05$). Hence there is significant difference between the demographic details among the respondents.

TABLE V SATISFACTION LEVEL DERIVED BY SCIENTISTS

Satisfaction Level Derived by Scientists		Value	Df	Sig
Pearson Chi-Square	Gender	55.356	10	.000
	Designation-wise	60.778	10	.000
	Years of experience	87.038	10	.011

Source: compiled from primary data

It was found that there is an association between the level of satisfaction among the scientists to differ from the gender-

wise, ($p=0.000<0.05$), category-wise, designation-wise of the scientists($p=0.000<0.05$), and among different years of experience ($p=0.011<0.05$) usage of electronic resources and perceived level of satisfaction. It is inferred that the association between levels of satisfaction were perceived by the scientists.

IX. FINDINGS OF THE STUDY

The study could identify the attitude of scientists to access the electronic resources for their research purpose with relevance to consistent and reliable information. The study could also find that the male scientists were more while compared to female scientists. The results of education-wise analysis show that under graduation is a minimum level of qualification for B category scientists and post-graduation is the maximum level of qualification belonging to other category scientists. The result indicates that the scientists mostly preferred DRDO e-journal portal as more informative for their research activities. The results were found significantly with the difference between category-wise scientists and profile of the scientists to determine the usage of electronic resource usage. It could be observed that the demographic factors are strongly associated with the scientists and level of satisfaction of using electronic resources for their activities.

X. CONCLUSION

Due to the information proliferation libraries are an ideal place to provide information and information is a key factor in all aspects of handling information. Electronic resources are drastically changing the attitude and behavior of information seekers. The scientists demand various categories of information which need different approaches and systems. The aim of the article examines the attitude and behavior of a scientist. The study found that the usage of electronic resource usage by the scientists is a crucial support for their research and URL access is a major crisis faced by the scientist.

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