Association Of Demographic Variables Versus Reading Articles From E-Journals And Its Effect On Scientists' Research: A Research Survey Of Aerospace Scientists And Engineers Of Bangalore

R Guruprasad, P Marimuthu

Abstract --**Knowledge production in the Aerospace industry is paramount. The Aerospace Industry is highly R&D intensive and the levels of competition are extremely high. In fact, more competition acts an innovation driver in Aerospace. In this information explosion age, it is practically impossible for an aerospace scientist or engineer to carry out his research work without embracing the network and Internet technologies. Moreover, it is absolutely clear that the use of electronic media to support scientific communication has undoubtedly been one of the paradigm shifts in the practice of science in this era. Demographics actually is a scientific study of characteristics and dynamics pertaining to the human population, including things like size, growth rate, density and distribution of a specified group. The primary reason people use demography is to create statistics--in fact, the term roughly translates to "people measurement." These allow a person to get a picture of how common specific traits within a group are. Comparing statistics over time also allows researchers to show changes that are happening in the target group. A research survey was undertaken to ascertain the 'Association of Demographic Variables Versus Reading Articles from E-Journals and its Effect on Scientists' Research' among the Aerospace Scientists and Engineers from 16 selected Aerospace Organizations of Bangalore . The major findings of this study are: The $\chi 2$ test indicates that the demographic variable, viz., Category Wise Distribution of Respondents [Aerospace Scientists and Aerospace Engineers]($\chi 2$=21.696, P Value = 0.000), Occupation($\chi 2$=49.678, P Value = 0.000) and Qualification($\chi 2$=25.440, P Value = 0.013) by the 'Reading Articles from e-Journals and its Effect on Scientists' Research' have significant association. This implies that the percentage of preference for the above mentioned demographic variables are not approximately the same [Not Uniformly distributed]. The $\chi 2$ tests for the remaining demographic variables, namely, Gender, Age-Group(P=0.088) and Specialization by the 'Reading Articles from e-Journals and its Effect on Scientists' Research' have no significant association. This implies that percentages of preference for these demographic variables are approximately the same [Uniformly distributed].**

Index Terms— Demographic Variables, Reading Articles from Journals, Effect on Scientists' Research, Aerospace Scientists and Engineers, City of Bangalore.

I. INTRODUCTION

There has been a paradigm shift in scholarly communication with advances in telecommunications, with the arrival of computer networks and the World Wide Web. With the transition from print to electronic and with the availability of digital libraries, scholars, scientists and engineers are beginning to see the distributed access to knowledge across continents, across different time zones, at anytime and from anywhere. All these could be attributed to the advent of various information technologies that have enriched scholarly communication in more than one way. Today, scholars, scientists and engineers greatly make use of information technologies in communicating with one another either formally or informally, and in seeking, using and creating information associated with their research and creative activities.

In this information explosion age, it is practically impossible for an aerospace scientist or engineer to carry out his research work without embracing the network and Internet technologies. They greatly depend upon these electronic innovation tools for accessing electronic information resources in the form of e-journals related to aerospace engineering right at their desktops. In fact, many of the scientists in today's R&D organizations have the unique privilege of downloading full-text e-journals right at their desktops through their Organization's e-Conglomerate.

It is absolutely clear that the use of electronic media to support scientific communication has undoubtedly

Manuscript received July 21, 2014

R Guruprasad, Knowledge andTechnology Management Division, CSIR-National Aerospace Laboratories, Bangalore, India

P Marimuthu, Dept. of Studies in Library and Information Science, University of Mysore, Mysore. India

been one of the paradigm shifts in the practice of science in this era. For a research scientist today, with access to the Internet, working across continents and in different time zones and keeping in touch with his peers has indeed become a reality due to the exponential growth of the telecommunication infrastructure that the world has witnessed. Most surprisingly, all this happens with very marginal costs of communication.

With the coming of e-resources, there has been a significant transformation by which scholarly information is disseminated throughout the world. In fact, the arrival of e-journals has greatly affected the way a scientist or an engineer seeks this information, acquires it and then uses it effectively.

Scholarly communication is very rapidly evolving. The usage trend is leaning more and more towards electronic formats. In many of the scientific areas, it is also observed that the electronic version of scientific publications is being read almost as often as the printed journals. If this trend continues, many authors feel that in the years to come the print versions of scientific publications will more or less disappear. It is very clear that the World Wide Web has very largely facilitated and propelled the emergence of these electronic resources. During a research interview by **[1, 2, 3, 4],** many of the scientists have revealed that 'electronic journals' are highly important to their work, more than any other information resources. Today, scientists are even willing to pay a high price in their time to spend many hours reading electronic scientific literature. Their study also revealed that the quality of information that a scientist gets from refereed journals has greatly resulted in their improved performance.

It is important to note that the scientists and engineers in aerospace organizations are currently working on projects, which are of strategic importance to this country. These scientists largely depend on rapid collection of information from various 'electronic information resources'

II. Use Patterns of Electronic Information Resources

Several studies on the influence of the use of electronic information resources on scholarly work have indicated that the use of electronic literature has improved their work considerably in several ways.

Today Governments, R&D institutions and Universities invest substantial sums of money for providing scholars with the digital literature they need for their research work with the intention that improved access to electronic information resources will lead to increasing scholarly productivity. The transformation of the physical library to the virtual library probably saves time, since one can access publications from one's desktop. The extent of publications available online combined with easier access has tremendously improved scholars' ability to keep abreast in their field, and perhaps inspire new ideas and ultimately enhance the quality of their work.

Several studies on the perceived influence of e-resources use on scholarly productivity have indicated that factors like: (a) Easier to find material, (b) Easier to get hold of material, (c) Extended range of material available electronically, (d) Easier to keep updated in one's field of research, (e) Improved quality of work, (f) Inspired new ideas, (g) Greatly saved working time, (h) Reduced time browsing in libraries, (i) multi-user access, fast access, (j) 24 hour access, (k) Available before print, (l) Multiple file formats for downloading and storing (PDF, RTF, DOC, HTML etc..), (m) enhanced access and visibility to scientific papers, (n) Keeps current about global R&D etc. has indicated that the use of electronic resources has considerably influenced the quality of work of the scholars and inspired new ideas to some extent.

III. The Electronic Journals and its Changing Patterns of Use.

It is absolutely clear that traditional print journals, even those available electronically are slowly changing. There is a paradigm shift in their usage and they are moving towards electronic formats. Many studies have revealed that the electronic versions of papers are being read about as often as the printed journal versions. The growth rates in usage of electronic information resources are sufficiently high and if this trend continues for a few more years, a time may come soon when the print versions will get 'totally eclipsed'. The coming of the World Wide Web has propelled this vigorous growth of the electronic forms of communication which simply do not fit into the traditional publishing format. With the coming of age of the electronic journals, it has totally altered the way scholarly information is disseminated throughout the world. There is no doubt that this particular innovation has changed the information usage of scientists. Invariably, the role of the librarian has dramatically changed to meet the 'vibrant electronic needs' of the scientists and engineers. Electronic journals has greatly affected not only the way information has spread, but also the way in which electronic information acquired and how scientists, engineers, scholars and researchers seek this needed information.

IV. AERADE'S And IAIN'S (International Pioneering Initiatives in Facilitating the Use of Aerospace Electronic Information Resources)

The Aerospace Information Management – UK (AIM-UK) project – found compelling evidence of 'under-utilization' of 'Electronic Information Resources' by the aerospace scientists and engineers. It recommended a number of initiatives to raise awareness and improve access to useful electronic information resources, and to reduce the threat of 'information overload'. In particular, there was a call to establish an Internet Gateway and Portal to the aerospace and defense community that would act as a 'jumping-off-point' for effective exploration and retrieval of information on the WWW. Launched in November, 1999, AERADE is specifically designed to meet this need. It is an initiative developed by the Cranfield University to enable aerospace and defense experts to find relevant information on the Internet. Today, the reports archive is a historical collection of over 10,000 significant technical papers and reports produced by the Aeronautic Research Council (ARC) and the National Advisory Committee for Aeronautics (NACA), **[5].**

In the Spring of 1995, the Technical Information Committee (TIC) of the NATO Advisory Group for Aerospace Research and Development (AGARD) set up a Working Group to examine the issues, strategies, and actions required to develop and establish an International Aerospace Information Network (IAIN). The intention was to develop a mechanism for improving the access to, and use of, aerospace and aerospace-related information, by developing a self-sustaining, worldwide, network of partner organizations committed to sharing their data and information resources. The success of this concept will be determined primarily on its ability to deliver the desired data and information and needed services to the user. It should include:

- he ability to search for aerospace and aerospace-related data and information across
- aerospace and aerospace-related data directory information
- he facility to order data products through a simplified "one-stop shopping" procedure the delivery of data to users on a variety of standard media, including electronic delivery where heterogeneous systems appropriate.

The Mission of AGARD centered around these following purposes:

- Providing scientific and technical advice and assistance to the Military Committee in the field of aerospace research and development (with particular regard to its military application)
- Continuously stimulating advances in the aerospace sciences relevant to strengthening the common defense posture
- Improving the co-operation among member nations in aerospace research and development
- Exchange of scientific and technical information
- Providing assistance to member nations for the purpose of increasing their scientific and technical potential
- Rendering scientific and technical assistance, as requested, to other NATO bodies and to member nations in connection with research and development problems in the aerospacefield **[6].**

V. National Aerospace Laboratories, Bangalore and Allied Aerospace Organizations in Bangalore: The Scope of the Present Study

The city of Bangalore, Karnataka is considered the 'Aerospace Hub' of the country with many key aerospace organizations which have already been established several years ago.

The National Aerospace Laboratories is India's premier civil aviation R&D aerospace research organization in the country. Its main mandate is the 'Development of aerospace technologies with strong science content and with a view on their practical application to the design and construction of flight vehicles'. NAL is also required 'to use its aerospace technology base for general industrial applications'. 'Technology' would be its core engine-driver for the future. NAL is also best known for its main sophisticated aerospace R&D testing facilities which are not only unique for this country but also comparable to similar facilities elsewhere in the world [7].

VI. CSIR's Pioneering Role in Promoting E-Resources Usage Amongst its Scientists Engineers and Technologists as Part of the (CSIR-NISCAIR-DST-NKRC Consortia)

Today, every CSIR-NAL scientist has access to online electronic scholarly information right at their desktops. This has been possible with the help of setting up of the 'The National Knowledge Resource Consortium (NKRC) jointly established by CSIR and DST with the 'National Institute of Science Communication and Information Resources (NISCAIR), a sister CSIR Laboratories as its apex body. With the setting up of the 'National Knowledge Resource Consortium', it has been possible for every NAL scientist and engineer to access almost 5,000+ e-journals by typing up with almost 23 reputed international journal publishers. This facility enables any CSIR scientist to access, browse,

search and download 'full-text' journal articles from any computer system connected to the campus wide network. This clearly indicates that 'Electronic Information Resources', more so e-Journals are extremely important to an aerospace scientist or engineer to keep pace with global R&D **[8].**

VII. Review of Literature

The authors [9], tracked the information-seeking information-seeking and reading patterns of science, technology, medical and social science faculty members from 1977 to the present. Their paper seeks to examine how faculty members locate, obtain, read, and use scholarly articles and how this has changed with the widespread availability of electronic journals and journal alternatives. The findings reveal that, the average number of readings per year per science faculty member continues to increase, while the average time spent per reading is decreasing. Electronic articles now account for the majority of readings, though most readings are still printed on paper for final reading. Scientists report reading a higher proportion of older articles from a wider range of journal titles and more articles from library e-collections. Articles are read for many purposes and readings are valuable to those purposes.

The author **[10],** reports that hard empirical data on the impact of the first wave of e-journals on the scholarly communities they serve. The paper also assesses the extent to which scholars and researchers are aware of, are influenced by, and build their own work upon research published in e-journals. They do by examining the artifacts of scholarly communication--the journal article and the references it makes.

The author highlights that, **[11]**, it does not take much work to find that the number of e-journals is growing annually and includes fields from theoretical computer science to medieval literature, or to find numerous instances where scholars have learned of new results or studies more rapidly by using electronic media. The increasing reliance on electronic journals by researchers, the proliferation of titles in cyberspace, and the inability to turn the clock back to a paper-only world indicates the need. The conflict scholars face when deciding whether to seek a seemingly speedy route to publication or a slow (but possibly more valid) route is not one that encourages the spread of knowledge. Only a clear policy (no matter which side it comes down on) can rectify this ambiguous situation.

The authors infer in their study that **[12],** there is abundant evidence to show that scholarly journals are well-read and that they are extremely useful and important to scientists' work, whether it be teaching, research, administration or other activities. Furthermore, the value of the information provided is clearly established, whether measured by what users are willing to pay for it (i.e., purchase value) or by the benefits derived from its use (i.e., use value). In addition, information attributes (e.g., relevance, quality, accuracy) and communication attributes (e.g., availability, accessibility, ease of use, cost of use) both contribute to their use, usefulness, and value.

In a survey of five US Universities, the authors bring to the reader's focus that **[13],** faculty read articles for research, teaching, writing, and other purposes; the largest number of readings is for research. The time spent reading scholarly articles (an estimated average of 132 hours and 240 articles per year) demonstrates their value to faculty's work; over one-third of readings are reported to be absolutely essential, and to affect the reader's purpose in many ways, including helping to improve results, or to broaden or change the focus. Faculty prefer print for personal subscriptions, although library electronic collections provide a majority of readings, and most readings from library collections are from electronic sources; older articles are also more commonly from electronic library collections.

Another research study opines, **[14]** that online journals promise to serve more information to more dispersed audiences and are more efficiently searched and recalled. But because they are used differently than print, scientists and scholars tend to search electronically and follow hyperlinks rather than browse or peruse. Electronically available journals may portend an ironic change for science.

VIII. Objective of the Study

To determine whether there is any association of 'Demographic Variables by the 'Reading Articles from e-Journals and its Effect on Scientists' Research' by the Aerospace Scientists and Engineers of Bangalore.

To determine whether the percentage of preference for the demographic variables, viz., (a) Category Wise distribution of the respondents [Aerospace Scientist / Aerospace Engineer], (b) Occupation profile, (c) Gender, (d) Age groups, (e) Qualification and (f) Specialization by the Reading Articles from e-Journals and its Effect on Scientists' Research' are approximately the same

IX. Null Hypotheses

- There is no association between the 6 demographic variables, namely, (a) Category wise distribution of the respondents, (b) Occupation profile, (c) Gender, (d) Age groups, (e) Qualification and (f) Specialization of the respondents and the 'Reading Articles from e-Journals and its Effect on Scientists' Research' by the Aerospace Scientists and Engineers

X. Materials and Methods

The present study is restricted to the selected 16 prominent aerospace organizations in Bangalore. A total number of 650 survey questionnaires were distributed amongst the aerospace scientists and engineers belonging to these 16 aerospace organizations. A total number of 612 questionnaires were received back finally 583 (89.7%) were selected for the study which were found suitable for the study.

A survey questionnaire has been used to conduct this research study. The total population size of this research study is restricted to the 1220 aerospace scientists and engineers in Bangalore. The distribution of Source Data is indicated in Table 1. Random sampling technique has been used for selection of the sample size. Table 2. indicates the Category-Wise Distribution of the Respondents (Aerospace Scientist / Aerospace Engineer). Table 3 highlights the 'Association of Demographic Variables versus Reading Articles from e-Journals and its Effect on Scientists' Research'

Table-1: Distribution of Source Data (Sample Size)

Sl.No.	Organizations	No. of Questionnaires distributed	No. of Questionnaires received	No. of usable questionnaires usable
1.	ADA	67	63	58
2.	AFTC	19	16	15
3.	ADE	14	12	12
4.	ASTE	33	30	29
5.	CABS	16	15	14
6.	CEMILAC	33	30	29
7.	C-MMACS	8	6	6
8.	DARE	11	9	9
9.	LRDE	5	3	2
10.	GTRE	24	22	21
11.	HAL	144	140	134
12.	IAM	40	36	33
13.	ISRO-ISTRAC	25	24	22
14.	IISc	38	37	34
15.	JNCASR	5	3	1
16.	NAL	168	166	164
Total		650	612	583 (89.7%)

Geographical Boundary of the Study (16 Prominent Aerospace Organizations of Bangalore, INDIA).

Key: ADA=Aeronautical Development Agency, AFTC=Air Force Technical College, ADE=Aeronautical Development Establishment, ASTE=Aircraft Systems Testing Establishment, CABS=Centre for Airborne Systems, CEMILAC=Centre for Military Airworthiness and Certification, C-MMACS=Centre for Mathematical Modeling and Computer Simulation, DARE=Defense Avionics Research Establishment, LRDE=Electronics and Radar Development Establishment, GTRE=Gas Turbine Research Establishment, HAL=Hindustan Aeronautics Limited, IAM=Institute of Aerospace Medicine, ISRO-ISTRAC=Indian Space Research Organization, IISc=Indian Institute of Science, JNCASR=Jawaharlal Nehru Centre for Advanced Scientific Research, NAL=National Aerospace Laboratories.

The investigator has divided the whole population of the study into two major categories: namely, aerospace scientists and engineers. It may be seen from Table 2, that out of 583 respondents, 295 (50.6%) are aerospace scientists and the remaining 288(49.4%) are aerospace engineers.

Table 2
Category-Wise Distribution of the Respondents

Sl. No.	Organizations	Categories		Organization Wise, Total No. of Respondents	% of Total Sample
		Aerospace Scientist	Aerospace Engineer		
1	ADA	39	19	58	9.9
2	AFTC	0	15	15	2.6
3	ADE	12	0	12	2.1
4	ASTE	2	27	29	5.0
5	CABS	13	1	14	2.4
6	CEMILAC	26	3	29	5.0
7	C-MMACS	2	4	6	1.0
8	DARE	7	2	9	1.5
9	LRDE	2	0	2	0.3
10	GTRE	12	9	21	3.6
11	HAL	3	131	134	23.0
12	IAM	30	3	33	5.7
13	ISRO-ISTRAC	5	17	22	3.8
14	IISc	21	13	34	5.8
15	JNCASR	1	0	1	0.2
16	NAL	120	44	164	28.1
Total for all Organizations		295	288	583	100.0
Percent for all Organizations		(50.6)	(49.4)	(100.0)	
Chi-Square		278.811			
P Value		0.000			

(Numbers in brackets indicate percentages)

Table 3
Association of Demographic Variables versus Reading Articles from e-Journals and its Effect on Scientists' Research

CATEGORY WISE DISTRIBUTION	Category V/s. Reading Articles from e-Journals: Effect on Scientist's Research					Total
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
Aerospace Scientist	6	17	45	158	69	295
	(2.0)	(5.8)	(15.3)	(53.6)	(23.4)	(100.0)
Aerospace Engineer	26	18	62	137	45	288
	(9.0)	(6.3)	(21.5)	(47.6)	(15.6)	(100.0)
Total	32	35	107	295	114	583
Percent	(5.5)	(6.0)	(18.4)	(50.6)	(19.6)	(100.0)
Chi-Square and P Value	$\chi 2 = 21.696$, P=0.000					
OCCUPATION PROFILE	Occupation V/s. Reading Articles from e-Journals: Effect on Scientist's Research					Total

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
Scientific/ R & D	4	19	56	181	67	327
	(1.2)	(5.8)	(17.1)	(55.4)	(20.5)	(100.0)
Armed Forces	9	4	15	42	11	81
	(11.1)	(4.9)	(18.5)	(51.9)	(13.6)	(100.0)
Teaching & Research	0	2	7	14	14	37
	(0.0)	(5.4)	(18.9)	(37.8)	(37.8)	(100.0)
Managers	19	10	29	58	22	138
	(13.8)	(7.2)	(21.0)	(42.0)	(15.9)	(100.0)
Total	32	35	107	295	114	583
Percent	(5.5)	(6.0)	(18.4)	(50.6)	(19.6)	(100.0)
Chi-Square and P Value	$\chi 2 = 49.678$, P=0.000					
GENDER PROFILE	Gender V/s. Reading Articles from e-Journals: Effect on Scientist's Research					Total
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
Female	3	5	13	37	13	71
	(4.2)	(7.0)	(18.3)	(52.1)	(18.3)	(100.0)
Male	29	30	94	258	101	512
	(5.7)	(5.9)	(18.4)	(50.4)	(19.7)	(100.0)
Total	32	35	107	295	114	583
Percent	(5.5)	(6.0)	(18.4)	(50.6)	(19.6)	(100.0)
Chi-Square and and P Value	$\chi 2 = 0.481$, P=0.975					
AGE-GROUP	Age Group V/s. Reading Articles from e-Journals: Effect on Scientist's Research					Total
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
21-30	13	9	28	112	48	210
	(6.2)	(4.3)	(13.3)	(53.3)	(22.9)	(100.0)
31-40	7	11	37	92	33	180
	(3.9)	(6.1)	(20.6)	(51.1)	(18.3)	(100.0)
41-50	10	10	23	68	19	130
	(7.7)	(7.7)	(17.7)	(52.3)	(14.6)	(100.0)
51-60	2	5	19	23	14	63
	(3.2)	(7.9)	(30.2)	(36.5)	(22.2)	(100.0)
Total	32	35	107	295	114	583
Percentage	(5.5)	(6.0)	(18.4)	(50.6)	(19.6)	(100.0)
Chi-Square and P Value	$\chi 2 = 19.038$, P=0.088					
QUALIFICATION	Qualification V/s. Reading Articles from e-Journals: Effect on Scientist's Research					Total

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
Doctorate Degree		3	11	45	27	86
		(3.5)	(12.8)	(52.3)	(31.4)	(100.0)
Masters Degree	10	16	49	135	47	257
	(3.9)	(6.2)	(19.1)	(52.5)	(18.3)	(100.0)
Bachelors Degree	21	16	46	113	40	236
	(8.9)	(6.8)	(19.5)	(47.9)	(16.9)	(100.0)
Diploma	1	0	1	2	0	4
	25.0%	(0.0)	25.0%	50.0%	(0.0)	100.0%
Total	32	35	107	295	114	583
Percent	(5.5)	(6.0)	(18.4)	(50.6)	(19.6)	(100.0)
Chi-Square and P Value	$\chi 2 = 25.440$, P=0.013					

SPECIALIZATION	Specialization V/s. Reading Articles from e-Journals: Effect on Scientist's Research					Total
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
Thermal & Fluid Sciences	2	7	15	40	21	85
	(2.4)	(8.2)	(17.6)	(47.1)	(24.7)	(100.0)
Avionics, Guidance and Control	4	4	23	61	24	116
	(3.4)	(3.4)	(19.8)	(52.6)	(20.7)	(100.0)
Aerospace Structures and Allied Mechanical Sciences	3	1	12	39	13	68
	(4.4)	(1.5)	(17.6)	(57.4)	(19.1)	(100.0)
Materials and Metallurgy	1	1	4	16	7	29
	(3.4)	(3.4)	(13.8)	(55.2)	(24.1)	(100.0)
Flight Operations and other Allied Disciplines	4	4	9	24	6	47
	(8.5)	(8.5)	(19.1)	(51.1)	(12.8)	(100.0)
General Engineering and Support Sciences	18	18	44	115	43	238
	(7.6)	(7.6)	(18.5)	(48.3)	(18.1)	(100.0)
Total	32	35	107	295	114	583
Percent	(5.5)	(6.0)	(18.4)	(50.6)	(19.6)	(100.0)
Chi – Square and P Value	$\chi 2 = 16.211$, P=0.703					

Key1: Using / Reading Articles from e-Journals and its Effect on Scientist's Research: (1) It inspired in collaboration / joint research, (2) It resulted in faster completion of tasks, (3) It resolved technical problems, (4) It saved time spent on article retrieval or visiting the library, (5) It helped in publishing more papers, (6) It helped in obtaining information related to specific experimental processes, (7) It helped in exchanging (received, distributed) more journal articles with colleagues, (8) It helped me becoming more organized in archiving papers, (9) It has helped me to gain more scientific knowledge.

Results and Discussion

 The χ^2 test indicates that the demographic variable, viz., Category Wise Distribution of Respondents(χ^2=21.696, P Value = 0.000), Occupation(χ^2=49.678, P Value = 0.000) and Qualification(χ^2=25.440, P Value = 0.013) by the 'Using/Reading Articles from e-Journals and its Effect on Scientists' Research' *have significant association.*

 The χ^2 tests for the remaining demographic variables, namely, Gender, Age- Group(P=0.088) and Specialization by the 'Using/Reading Articles from

e-Journals and its Effect of Scientists' Research' have *no significant association.*

Conclusions

The main conclusions that we would like to draw from this study are:

- The $\chi 2$ test indicates that the demographic variable, viz., Category Wise Distribution of Respondents($\chi 2$=21.696, P Value = 0.000), Occupation($\chi 2$=49.678, P Value = 0.000) and Qualification($\chi 2$=25.440, P Value = 0.013) by the 'Using/Reading Articles from e-Journals and its Effect on Scientists' Research' *have significant association.*
- This implies that the percentage of preference for the above mentioned demographic variables are not approximately the same [Not Uniformly distributed].
- The $\chi 2$ tests for the remaining demographic variables, namely, Gender, Age-Group(P=0.088) and Specialization by the 'Using/Reading Articles from e-Journals and its Effect on Scientists' Research' have no significant association.
- This implies that percentages of preference for these demographic variables are approximately the same [Uniformly distributed].

Acknowledgements

The authors would like to thank the Director, CSIR-NAL for supporting the research work.

References

1. Tenopir, C. and King D.W. (2001), Use and value of Scientific Journals: Past, Present and Future, *Serials,* V14(2), 113-120.
2. Tenopir, C. (2001), The power of citation searching, *Library Journal*, V126(18), 39-40.
3. Tenopir, C. and King, D.W. (2001), The use and value of scientific journals: past, present and future, *Serials* – 14(2), 113-120.
4. Tenopir, C. and King, D.W. (2001), Electronic Journals: How user behaviour is changing, *Online Information, Proc. Of the International Online Information Meeting*, London, Dec. 2001. Oxford: Learned Information Europe Ltd., 175-81.
5. Hanley K, et al. Aerospace Information Management (AIM-UK): Final Report, Cranfield University Press, Cranfield, 1998.
6. Walter B, Ed. 'An International Aerospace Information Network'. AGARD – Advisory Group for Aerospace Research and Development, AGARD-AR-366, Final Report of the AGARD Technical Information Committee Working Group, 2008, No. 3.
7. www.nal.res.in
8. http://nkrc.niscair.res.in/indexpage.php
9. Tenopir, C. and King D.W. (2009), Electronic Journals and Changes Scholarly Article Seeking and Reading Patterns, Aslib Proceedings, 61(1), 5-32.
10. Harter, S.P. (1996), 'The Impact of Electronic Journals on Scholarly Communication: A Citation Analysis, The Public-Access Computer Systems Review 7(5), 5-34.
11. Aldrin, S.E. (2000), 'Tenure and Promotion: Should you Publish in Electronic Journals'? 6(2), http://dx.doi.org/10.3998/3336451.0006.201.
12. Tenopir, C. and King, D.W. (1998), 'Designing Electronic Journals with 30 Years of Lessons from Print, The Socio Economic Dimensions of Electronic Publishing, Journal of Electronic Publishing, 4(2).
13. King, D.W., Tenopir, C., Songphan, C. and Lei, W., (2009), 'Scholarly Journal Information Seeking and Reading Patterns of Faculty at Five Universities, Learned Publishing, 22(2), 126-144.
14. Evans, A.J. (2008), 'Electronic Publication and the Narrowing of Science and Scholarship, Science, 321(5887), 395-399.