



ISSN: 2249-894X  
 IMPACT FACTOR : 5.7631 (UIF)  
 UGC APPROVED JOURNAL NO. 48514  
 VOLUME - 8 | ISSUE - 8 | MAY - 2019



## USE OF OPEN ACCESS JOURNALS BY THE ACADEMICS OF PURE SCIENCES IN ANDHRA UNIVERSITY, VISAKHAPATNAM: A STUDY

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### ABSTRACT:

*The objective of the paper is to explore the extent of awareness and use of open access (OA) journals by the faculty members and research scholars of pure sciences in Andhra University (AU), Visakhapatnam, AP. For conduct of the research, Survey Method is followed, and Questionnaire technique to collect the data to meet the stated objectives of*

*the study. A structured questionnaire was prepared and administered to 120 research scholars and faculty members of pure sciences of AU. Of which, 71 filled in questionnaires were received back. The data received through the questionnaire was analysed and the conclusions are drawn. SPSS statistical software version 25 for windows was used for statistical analysis. The major findings of the study are: all the academics – research scholars and faculty members-- in pure sciences of AU are aware of Open Access (OA) Journals, and majority of them are accessing / using OA journals in their respective subjects. Further, the study also found that the academics in pure sciences have positive opinion on the merits of publishing in OA, compared to the proprietary / subscription journals in terms of receiving more number of citations to the articles and a better impact factor for the OA journals.*

**KEYWORDS:** Open Access Journals; Open Access Publishing; Open Access Journals - Pure Sciences; Open Access Journals-Use; Open Access Journals – Awareness; Open Access Publishing-Academics' Perception.

### INTRODUCTION

Open Access journals are gaining importance in the present Internet era as a means of scholarly communication, rather a preferred means of scholarly communication, and also in achieving the goal of 'Information for All'. Open

access publishing is also viewed from the stand point of democratization of information / knowledge and also as a means of bridging the digital divide. The scholars, academics, the learned communities and the governments across the globe are presently concerned on how best to make use of open access resources and also to promote open access publishing for the common good of the entire society. The governments of various countries across the world are taking measures to develop policies and mandates for publishing the government

funded research results to be published in open access, or to maintain a repository of resources so that the academics and researchers of all disciplines will benefit from the openly available literature and thereby accelerate the research and innovations. In this context, the need for conducting a study on the current scenario of awareness and access to open access journals among the scholars and faculty members of universities is felt relevant and useful, especially when the nations and societies are destined to promote the open

access publishing and to make use of the OA resources optimally by all the stakeholders including the librarians, academics and research communities.

### WHAT IS OPEN ACCESS?

Open access in its simpler terms is the free access to the published information for everyone without any financial, geographical and legal restrictions. It is aimed at free and online access to scholarly publications and data. It allows anyone to access, read, download, copy, distribute, print, search for, preserve and use it in education, research or in any other way within the legal agreements. There are no financial, legal or technical barriers in accessing OA resources as they are kept open in the public domain for everyone or anyone to access. SPARC (Scholarly Publishing and Academic Resources Coalition), defines Open Access as the free, immediate, online availability of research articles coupled with the rights to use them fully in the digital environment.

The most important advantage of open access is that it increases the visibility and use of academic research results, thereby benefitting all the stakeholders of open access publishing, such as, authors of publications, institutions / organizations, publishers and mostly the users who could find their required information freely, online, round the clock, and from wherever they are.

In general, there are two essential means of providing the scholarly information in open access. They are:

1. **Green Open Access** is the self-archiving of articles or other materials published in an institutional or central repository or other Open Access websites. (Articles do not need to be published in Open Access journals to be green as long as they are archived in an Open Access database or repository).
2. **Gold Open Access** is when articles are published in an online journal that is open access with immediate, and free access. The number of Open Access journals is growing rapidly as the Open Access movement fast growing. As on May 10, 2019, the DOAJ (Directory of Open Access Journals) indexes 13,171 OA Journals comprising of all the disciplines, and India is one of the top fifteen countries to contribute to OA Journals.

### Why open access?

The subscription-based (proprietary) journals were considered as the most preferred means of scholarly publishing till the recent past. But the prohibitive costs of the publications which are controlled by the commercial publishers and vendors have become detrimental to the information seekers / users of information. Limited access means limited use, and consequentially limited impact, and limited benefits for science, technology and all other disciplines and for society at large. Open Access removes such limitations, and satisfies the interests of scientific and academic communities, including the funding agencies, and society as a whole.

### Advantages of Open Access Journals:

Open Access Journals have the following advantages. They:

1. Improve the speed, efficiency of research by cutting short of time.
2. Enhances the resource base of the institutions or libraries by making available papers that their library or institution does not subscribe to
3. Increase the visibility, usage, and impact of research and allows the professional, practitioner and business communities, and all the interested public

### Pure Sciences

The study is conducted on the scholars and faculty members of Pure Sciences of Andhra University, viz., Botany, Chemistry, Mathematics, Physics and Zoology.

### REVIEW OF LITERATURE:

Numerous studies have been carried out to assess the awareness, perceptions and use of open access journals by the faculty members and researchers of various disciplines, but no study has been

undertaken to investigate the academics (faculty members and research scholars) of pure sciences of Andhra University, on their perception, awareness and use of open access journals.

A study by Gul, et al. (2010) conducted a study on the researchers of University of Kashmir. The study found that about 84% of the research scholars use OA journals and the majority of them come to know about the existence of OA journals through their colleagues. Majority of the respondents considered to publish their works in Open Access journals as OA Journals are quick to publish, increase productivity, and increase the citations to their papers.

Harish and Geetha (2013) conducted a study on faculty and research scholars of engineering colleges in Mysore, and found that majority of respondents are highly satisfied with the content available in open access journals.

### Objectives of the Study:

1. To find out the extent of awareness and use or access to OA journals by the academics of pure sciences of Andhra University.
2. To explore the preferred place of access to open access journals by the academics.
3. To ascertain the purpose and benefits of using open access journals by the academics.
4. To find out the problems faced by the academics if any, in accessing open access journals.

### METHODOLOGY

**Survey Method** is followed to conduct the present study. A structured questionnaire was designed to collect the required information from the academics (faculty members and the research scholars) of pure sciences departments of Andhra University. Andhra University is one of the oldest universities in the state of Andhra Pradesh, India and it is a multi-disciplinary university with a large number of research scholars and faculty members. The sample for the study was selected at random (**Random Sampling**) from the five (5) departments in pure sciences, viz., Mathematics, Botany, Zoology, Physics and Chemistry of Andhra University. 120 questionnaires were distributed randomly to academics in person at the Andhra University, Visakhapatnam. A total of 70 filled in questionnaires were received back from the research scholars and faculty members, making the response rate of 58.33%. The data obtained through the questionnaires were coded and copied into a Microsoft Excel spreadsheet. Descriptive statistics were performed using the SPSS statistical software, version 25.0 for Windows.

### DATA ANALYSIS

The issue-wise analysis and description of the data which were collected through the questionnaire is presented in the following paragraphs.

#### Gender-Wise Distribution of Respondents

The gender-wise distribution of respondents (sample surveyed) is presented in the following table.

**Table 1 : Gender-wise Representation of Respondents**

Respondents	Frequency	Percentage
Male	36	51%
Female	34	49%
Total	70	100%

The data in the above Table-1 reveals that majority of the respondents (51%) are male, while the female respondents are 49%. Thus, the sample comprises of an almost equal number of male and female respondents.

### Academics and their Awareness on OA Journals

The data collected on the gender-wise awareness of OA journals by the academics of pure science of Andhra University is presented in the following table.

**Table 2: Gender-wise Awareness of OA Journals by the Respondents**

Respondents	Yes	No	Percent
Male	36	0	51%
Female	34	0	49%
Total	70	0	100%

The above table depicts the awareness of Open Access Journals among the academics of Andhra University. Out of 70 respondents, all the respondents, i.e., 70(100%) opined that they are aware of OA Journals. This clearly shows that all the male and female academics of the Andhra University are aware of open access scholarly communication in the faculty of pure sciences equally and there is no difference in their awareness on OA journals by virtue of a particular gender.

### Subject-Wise Distribution of Respondents

**Table 3 : Subject wise respondents**

Subject	No. of Respondents	Percent
Botany	20	29%
Chemistry	11	16%
Mathematics	8	11%
Physics	9	13%
Zoology	22	31%
Total	70	100%

The above table shows that subject wise distribution of respondents, out of 31% of respondents from the Zoology, 29% from Botany, 16% from Chemistry, 13% from Physics and only 11% from Mathematics.

### Academics and Use / Access of OA Journals

The data on the academics and how long they are aware of OA Journals and accessing them is ascertained through the questionnaire and the same is presented in the below given table

**Table 4 : Awareness and Accessing of OA Journals by the Academics**

Awareness and Accessing Journals, since	Frequency	Percent
1 Year	10	14
2 Years	20	29
3 Years	19	27
More than 5 Years	21	30
Total	70	100

The above table shows awareness and use of Open Access Journals by the respondents in Andhra University. Considerable section of the respondents, i.e., 30% are aware of and using Open

access journals for more than 5 years, 29% respondents are aware of and using OA Journals for the last 2 years, whereas, 27% respondents are using since 3years and only 14% respondents are aware of and using OA journals for the last one year. It is conclude that all the academics from pure sciences are aware of Open Access Journals and they have been using the OA journals either for the last one year or for the last five years or more.

### Respondents and their Perception on OA Journals

The perception of the academics on certain issues pertaining to OA journals, such as, OA Journals support free access to all; the readership to OA journals is more than the proprietary journals; OA Journals receive high impact factor, and more citations than proprietary journals, etc. have been collected and presented in the following table.

**Table 5 : Academics' Perception on Open Access Journals**

Perception	Not at all Agree	Agree to some extent	Agree	Strongly Agree
OA Journals support the principle of 'free access to all'	2 (2.86%)	10 (14.29%)	33 (47.14%)	25 (35.71%)
The readership for OA journals is larger than subscription-based journals	5 (7.14%)	14 (20.00%)	36 (51.43%)	15 (21.43%)
The OA journal(s) have a high impact factor	5 (7.14%)	37 (52.86%)	26 (37.14%)	2 (2.86%)
OA articles are more frequently cited	9 (12.86%)	14 (20.00%)	25 (35.71%)	22 (31.43%)
OA journals are influenced by grants providing bodies	15 (21.43%)	29 (41.43%)	22 (31.43%)	7 (10.00%)
OA journals have faster publication time than other types of journals	10 (14.29%)	19 (27.14%)	26 (37.14%)	15 (21.43%)
No costs or minimal costs involved in publishing in OA journals	8 (11.43%)	32 (45.71%)	22 (31.43%)	8 (11.43%)

The data in Table-2 reveals the perception of the academics on open access journals that large majority of the respondents agree with four positive statements about OA journals. They are: 'OA Journals Support the principle of 'free access to all'' agreed by 47.14%, and strongly agreed by another 35.71% of the respondents. That is, a large majority (82.75%) of the academics either agree or strongly with the statement. 'The readership for OA journals is larger than subscription journals' is agreed by 51.43% of respondents and strongly agreed by another 21.43% of them. That is, in all 72.86% of the academics either agree or strongly agree with the statement that the readership for OA journals is larger than the subscription journals. 'OA articles are more frequently cited' is agreed by 35.71% of the respondents and another 31.43% of them strongly agreed with the statement. That is, in all 67.14% of the academics either agree or strongly agree with the statement that 'OA articles are more frequently cited' than the proprietary journal articles. 37.14% and 21.43% of the academics have agreed and strongly agreed, respectively with the statement 'OA journals have faster publication time than proprietary journals'. That is, majority of the respondents (58.57%) support that OA journals are faster in publishing than the proprietary print journals. For the statement on 'No costs or minimal costs involved in publishing in OA journals' 11.43%, 31.43% and 45.71% of the academics have strongly agreed, agreed, agreed to some extent, respectively that OA journals do not need costs or minimal costs are involved in publishing in OA compared to proprietary print journals.



### Place of Access of Open Access Journals

The data on the academics and their preferred place of access to OA journals has been ascertained and presented in the following table.

**Table 6: Place of Access of Open Access Journals by the Academics**

Place of Access	Access Frequently	Access Sometime	Never Access	Rank
University Library	29 (41.43%)	27 (38.57%)	14 (20.00%)	2
Departmental Library	43 (61.43%)	19 (27.14%)	8 (11.43%)	1
Home	26 (37.14%)	31 (44.29%)	13 (18.57%)	3
Internet Café	22 (31.43%)	24 (34.29%)	24 (34.29%)	4
Other Places	17 (24.29%)	19 (27.14%)	34 (48.57%)	5

The preferred place of access to Open Access Journals by the academics reveals that 61.43% of them access OA journals frequently from their respective Department Library or from their departments, and access sometimes by about 27.14% of them. That is 88.57% of the academics access OA Journals either frequently or sometimes from their departmental library or the departments. And it is the academics' most preferred place of accessing OA journals and stands as rank 1; Whereas, 41.43% of the respondents frequently access OA journals from the University Library and another 38.57% of them access sometimes from the university library. That is, about 80.0% of the academics access OA Journals from the University Library, which is their second preferred place of access to OA journals. Third preferred place of accessing OA journals by the academics is from their homes. This can be observed from the data that 37.14% and 44.29% of the respondents access the OA journals frequently and sometimes, respectively from their homes. That is, a large section of academics (81.43%) access OA journals from their homes and this is their third preferred place of access to OA Journals. Whereas, 31.43% and 34.29% of the respondents access the OA Journals from the Internet Cafes frequently and sometimes, respectively. This is their fourth preferred place of access to OA journals. Whereas, accessing from other places is their least preferred place of access to OA journals. And at the same time 20.00% respondents never access from University Library. This, is a serious issue need to be addressed by the libraries and the university administration in creating awareness OA journals and putting them for use / access.

### Purpose of Use of Open Access Journals

The data on the purpose(s) of use of OA journals by the academics is collected from the respondents and presented in the following table.

**Table 7: Purpose for using Open Access Journals**

Purpose	Frequently	Rarely	Never	Rank
Writing Papers	55 79%	12 17%	3 4%	3
Projects	36 51%	27 39%	7 10%	4
Books	0 0%	0 0%	0 0%	9
Prepare Notes	31	24	15	7

	44%	34%	21%	
To Support Academic Work	35 50%	28 40%	7 10%	6
Research Work	60 86%	9 13%	1 1%	1
Writing Seminar/ Conference Papers	35 50%	29 41%	6 9%	5
Update Knowledge	58 83%	11 16%	1 1%	2
Any other	5 7%	18 26%	47 67%	8

The Table 4 shows the purpose of use of Open access journals by the academics of five subjects of pure sciences in Andhra University. Large majority of the respondents 86% use the Open Access journals frequently for the purpose of research works. It is the academics first preferred purpose of use of OA journals. Followed by about 83% academics who use OA journals to update their knowledge is the second preferred purpose of use OA Journals, and 79% of the respondents who use OA journals for writing papers is their third preferred purpose for which they use OA journals.

### Reasons for Non-use of Open Access Journals

The reasons for non-use of OA journals or the constraints in use of OA journals is ascertained from the respondents and the same is presented in the table below.

**Table 8: Reasons for Non-use of Open Access Journals**

Reasons for non-use of OAJ	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Insufficient number of PCs available	9 12.90%	21 30.00%	16 22.90%	11 15.70%	13 18.60%
Limited number of Journals available in OA	15 21.40%	28 40.00%	11 15.70%	6 8.60%	10 14.30%
Don't know where to find OA journals	4 5.70%	21 30.00%	16 22.90%	20 28.60%	9 12.90%
Do not like reading from screen	8 11.40%	22 31.40%	11 15.70%	18 25.70%	11 15.70%
More comfortable with print journals	10 14.30%	33 47.10%	11 15.70%	13 18.60%	3 4.30%
OA journals are unorganized	3 4.30%	20 28.60%	18 25.70%	18 25.70%	11 15.70%

The findings reveal that 21.40% of respondents strongly agree that, limited number of Journals available in OA is major constraint, followed by the statement that they are more comfortable with print journals (14.30%) hence do not want to use OA journals..

### MAJOR FINDINGS:

The other major findings of the study are that the academics in pure sciences have positive opinion on the merits of OA publishing, compared to the proprietary / subscription journals in terms of receiving more number of citations to the articles and a better impact factor for the journals.

1. All the academics – research scholars and faculty members-- in pure sciences of AU are aware of Open Access (OA) Journals, and majority of them are accessing / using OA journals in their subjects either for the last one year or for more than five years.

2. 51.43% of respondents agree that OA Journals are having larger readership compared to the subscription journals.
3. 31.43% of respondents strongly agree that OA articles are more frequently cited.
4. 61.43% of academics access the OA journals from their departmental libraries, followed by 41.43% access from the University Library. It shows that University or university library is having sufficient infra-structure for accessing the open access journals in the campus.
5. 86% of respondents use open access journals for the purpose of research work, and 83% use to update their knowledge.
6. 24.40% of the academics are of the opinion that only a limited number of open access journals are available in their concerned subject.

### CONCLUSION:

Open Access Publishing is gaining importance in the present 21<sup>st</sup> century in view of its advantages over the print and proprietary publications. Open access journals are considered as the current and best means of scholarly communication. It is expected that OA publishing will help achieving the ideal and noble goal of '**Information for All**' by democratization of information and knowledge. Open access is the free access to the published information for everyone without any financial, geographical and legal restrictions.

The study is made on the academics (research scholars and faculty members) of pure science discipline of Andhra University, comprising of the subjects viz., Mathematics, Physics, Chemistry, Botany and Zoology. Survey method of research is followed for conduct of the research and questionnaire technique for collecting data.

The major findings of the study are that all the academics – research scholars and faculty members-- in pure sciences of AU are aware of Open Access (OA) Journals, and majority of them are accessing / using OA journals in their respective subjects. Further, the study also found that the academics in pure sciences have positive opinion on the merits of publishing in OA, compared to the proprietary / subscription journals, in terms of receiving more number of citations to the articles and a better impact factor for the OA journals. It is also found that the academics use open access journals for the purpose of research work, and to update their knowledge which being their top two important purposes of use of OA journals. It is observed that the academics of pure sciences believe that the OA journals have larger readership compared to the subscription journals. The advantages of open access is that OA increases the visibility and use of academic research results, thereby benefitting all the stakeholders of open access publishing, such as, authors of publications, institutions / organizations, publishers and mostly the users who could find their required information online freely, round the clock, and from wherever they are. The University Librarians and the universities have a role in educating the academics on the advantages of publishing in OA and to promote OA Publishing by the scholars and faculty members of the universities for common good and advantage of the entire society.

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