- Digital repository should be a mandatory part of the syllabus of Library and Information Science curriculum in India.
- Time demands to conduct workshops and training programmes for creating expertise in setting up of digital repositories.
- It is appreciable to arrive at consensus on standard to be adopted for implementation of digital repositories in the country.
- All institutions should provide necessary infrastructure including servers, PCs, scanners, Internet bandwidth and software required for setting up of digital repository. Required funds and manpower should also be made available.

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H3: Digital repositories play a vital role in teaching and learning activities	1.494	3	.232	26.25000	-29.6678	82.1678
H4: There is no remarkable difference between UGC approved and impact factor journals for publication	5.000	3	.015	26.25000	9.5422	42.9578

As above table reveals that the calculated value for hypothesis H_1 is 1.776 which is less than the tabulated value. Therefore the hypothesis the scholars are aware about the digital repository and open access publishing may be accepted at 5% level of significance. Similarly calculated value for hypothesis H_2 is 1.489 hence the hypothesis i.e. most of the scholars are willing to deposit their intellectual research output for open access is also accepted. The calculated value for hypothesis H_3 is 1.494 it may also be confirmed. As null hypothesis, H_4 (there is no remarkable difference between UGC approved and impact factor journals for publication) is 5.000 just within the acceptable criteria, is also confirmed.

7. Conclusion and Suggestions

Digital Repositories are now clearly and broadly being recognized as essential infrastructure in the digital world. As even the weal theist institute cannot purchase access to all the information that all their scholars require. New technology, in particular the coming of the Internet allows to revise or to reinvent scholarly communication. There is a need for development of Digital Repositories and open access initiative so that the way they interact could result in a future where the world's research is available to all. Below are discussed some valuable suggestions for setting digital repositories.

- The government and the government agencies including universities and important research establishment like CSIR, ISRO, DRDO, ICAR, ICMR, must take a policy decision for setting up of IRs in their respective organization.
- An intensive awareness should be brought for the librarians and the users highlighting the benefits of digital repository.

Table 5.10: Preference for Document Format

Preference	Response of Scholars					Total	Mean
	1	2	3	4	5		
Word Document	2	8	21	164	255	450 (85.7%)	90
PDF	0	0	6	192	275	473 (90%)	94.6
PPT	16	18	33	116	200	383 (72.9%)	76.6
HTML	10	12	21	148	225	416 (79.2%)	83.2
JPEG	18	36	42	104	145	345 (65.7%)	69

The question was asked to know which document format for downloading is generally preferred by the scholars. The topmost position is scored by PDF i.e. 90%. The second in the category is word document with 85.7%. Similarly HTML receives 79.2% and PPT scores 72.9%. The last in the preference list is JPEG with 65.7%.

6. Testing of Hypothesis

Below is the interpretation and t-test value of collected data to prove the hypothesis.

Hypothesis	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence interval of the Difference	
					Lower	Upper
H1: The scholars are aware about the digital repository and open access publishing	1.776	3	.174	26.25000	-20.7988	73.2988
H2: Most of the scholars are willing to deposit their intellectual research output for open access	1.489	3	.233	26.25000	-29.8486	82.3486

Table 5.8 and figure 4 shows that 28.5% scholars agree to deposit their research papers and project reports. 22.8% research scholars agree to deposit their thesis to digital repository and 8.5% are willing to deposit book chapters. 7.6% scholars agree to deposit other material and the lowest rate is 3.8% who agree to deposit their presentations. The 3.624 value which is significant also confirms.

Advantages of Digital Repository

This question was asked to rate the opinion about the advantage of digital repository. The analysis is given in the below table 5.9.

Table 5.9: Advantages of Digital Repository

Advantage	Response of Scholars					Total	Mean
	1	2	3	4	5		
Digital preservation of research output	6	30	27	120	225	408 (77.7%)	81.6
Increase citation	0	4	9	160	300	473 (90%)	94.6
Up-to-date with current research	15	24	30	144	160	373 (71%)	74.6
Increase value and reputation	2	10	18	176	240	446 (84.9%)	89.2
Free access	0	32	30	128	235	425 (80.9%)	85

Table 5.9 indicates that the greatest advantage of digital repository that receives the highest score i.e. 90% is that it has increased citation. Its next advantage is that it increases value and reputation as said by 88.9% scholars. The free access gets 80.9% and 77.7% said that it helps in digital preservation of research output. The advantage that receives comparatively low scores is up-to-date with current research aspect with 78.9% score.

Preference for Document Format

We can manage our intellectual output in various types of document format. Table 5.10 depicts the preference of scholars for downloading the document format on open access platforms.

Table 5.7: Willingness to Deposit Intellectual Research Output for free Access

Free Access	No. of Scholars	Percentage
Strongly agree	78	74.2%
Agree	19	18%
Neutral	06	5.7%
Disagree	02	1.9%
Total	105	100%

t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
1.489	3	.233	26.25000	-29.8486	82.3486

The above data make it evident that majority of 74.2% scholars strongly agree to deposit their research output in the digital repository for free access. 18% scholars just agree to it and 5.7% had neutral attitude for the same. Only 1.9% scholars disagreed for depositing their research output on digital repository. The t-test value 1.489 is significant.

Type of Research output Deposited on Open Access Repositories

Another question which was put to the scholars was about types of reading materials that they would be interested in contributing to open access digital repository.

Table 5.8: Type of Research output Deposit on Open Access Repositories

Source	No. of Scholars	Percentage
Thesis	24	22.8%
Research papers	30	28.5%
Project report	30	28.5%
Book chapters	09	8.5%
Presentations	04	3.8%
Others	08	7.6%
Total	105	100%

t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
3.624	5	.015	17.50000	5.0873	29.9127

The targeted research scholars were asked how important do they feel digital repository is in teaching and learning activities. The collected data reveal that majority of 74.2% feel digital repository is very important in teaching and learning and 17.1% feel it is important. On the other hand only 6.6% said that digital repository is least important and 1.9% are of the view that is not important at all.

The t-test value 1.494 in respect of importance of digital repository in teaching and learning activities is significant.

Sources for Scholars' Awareness about Digital Repository

The question was asked to identify how effectively the various available sources motivate the scholars to deposit their research work in an open access repository/ digital repository or an archive.

Table 5.6: Sources for Scholars' Awareness about Digital Repository

Source			No. of Scholars	Percentage	
Library personnel			28	26.6%	
Through Internet			49	46.6%	
My supervisor			02	1.9%	
Professional colleagues			22	20.9%	
Faculty members			04	3.8%	
Total			105	100%	
t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
2.438	4	.071	21.00000	-2.9161	44.9161

Table 5.6 and figure 3 show that out of 105 scholars 46.6% got information on or through Internet. 26.6% came to know from library personnel and 20.9% by their professional colleagues. The sources of awareness for 3.8% were the faculty members. Only 1.9% of the scholars came to know their research supervisor. The 2.438 which is significant also confirms the relationship with source of awareness about digital repository.

Willingness to Deposit Intellectual Research Output

A digital repository must be kept updated by the latest intellectual research output. The question was asked to find out whether the scholars are genuinely interested in depositing their research output in the digital repository.

Table 5.4: Awareness about Open Access and Digital Repository

Familiar	No. of Scholars	Percentage
Completely familiar	69	65.7%
Just heard	08	7.6%
Somewhat	23	21.9%
Not at all	05	4.7%
Total	105	100%

t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
1.776	3	.174	26.25000	-20.7988	73.2988

It can be noted from the above data collected that 65.7% scholars are completely familiar with open access and Digital Repository/Institutional Repository. 21.9% scholars have somewhat familiarity with Digital Repository. 7.6% have just heard and 4.7% have not at all heard about open access and digital repository. The value 1.776 for awareness about open access and digital repository is acceptable

Importance of Digital Repository in Teaching and Learning activities

The digital resources have influenced educational world tremendously. Universities and research institutions are using new information technology to provide electronic resources as an important part of their learning and teaching strategies. The table below discusses the importance of digital repository as per the responses collected from the scholars.

Table 5.5: Importance of Digital Repository in Teaching and Learning activities

Importance	No. of Scholars	Percentage
Very important	78	74.2%
Important	18	17.1%
Least important	07	6.6%
Not important	02	1.9%
Total	105	100%

t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
1.494	3	.232	26.25000	-29.6678	82.1678

t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
3.661	5	.015	17.50000	5.2122	29.7878

The above collected data make it evident that majority of 33.3% scholars are from science faculty. Similarly 26% are from social sciences, 15.2% from humanities, 12.3% from management, 7.6% from education the lowest number of scholars i.e. 4.7% are from faculty of law. The t-test value 3.661 is significant with faculty wise distribution of scholars.

Preference for Publication of Research Articles

A variety of journals are available for publication of research output. The below given table helps to know the preference of the scholars for publication of the research articles.

Table 5.3: Preference for Publication of Research Articles

Preference	No. of Scholars	Percentage
Journals approved by UGC	35	33.3%
International journals	14	13.3%
Open Access journals	21	20%
Journals with impact factor	35	33.3%
Total	105	100%

t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
5.000	3	.015	26.25000	9.5422	42.9578

Table 5.3 and figure 1 depict that 33.3% scholars prefer to publish their research output either in UGC approved or journal with impact factor. Open access journals are the preference of 21% scholars. And only 13.3% prefer International journals for publication of their research output. The t value 5.000 in respect to preference for publication of research articles is within the borderline.

Awareness about Open Access and Digital Repository

The purpose of asking this question from users is to know how much they are aware about open access and digital repository in this electronic era.

X_i = value of the i^{th} item X, I=1,2,3,.....n

n = total number of items

Arithmetic mean is the simplest average to understand and the easiest to compute. It is also a calculated value, and not based on position in the series. But extreme items in the series affect it and in case of a U-shaped distribution the mean is not likely to serve a useful purpose (Gupta, 1998, p.E-7.15). The t-test also adopted to prove the significance level of hypothesis.

Gender of the Scholars

The table below divides the number of targeted scholars on the basis of their gender.

Table 5.1: Gender of the Scholars

Gender	No. of Scholars	Percentage
Male	60	57.1%
Female	45	42.8%
Total	105	100%

Table 5.1 depicts that out of the 105 surveyed research scholars 57.1% are males and 42.8% are females.

Faculty-wise distribution of Scholars

The user community consist only research scholars of various departments belonging to the constituted Colleges of the University. In the below table it is noted that 105 (70%) of the scholars belong to various subject streams.

Table 5.2: Faculty-wise distribution of Scholars

Subject field	No. of Scholars	Percentage
Science	35	33.3%
Management	13	12.3%
Social Sciences	28	26.6%
Humanities	16	15.2%
Law	05	4.7%
Education	08	7.6%
Total	105	100%

H_3 Digital repositories play a vital role in teaching and learning activities.

H_4 There is no remarkable difference between UGC approved and impact factor journals for publication.

4. Scope and Limitation of the Study

The data was collected through the questionnaire distributed among 150 research scholars of Mohanlal Sukhadia University, Udaipur, Rajasthan during the course work of Ph.D. program. Out of these 105 (70%) scholars responded to the queries and returned the duly filed questionnaire. This collected data has been further tabulated and interpreted.

5. Analysis and Interpretation of Data

Below are discussed the important types of statistical techniques adopted in the present study for the analysis and interpretation of data.

Percentage: It is calculated for qualitative variable which is presented as follows-

$$\% \text{ of the } i^{th} \text{ class} = \frac{X_i}{n} X\ 100$$

where,

X_i = observed frequency in the i^{th} class

n = total number of observations

Arithmetic Mean: It is defined as the value that we get by dividing the total of the values of various given items in a series by the total number of items.

$$\text{Mean (or X)} = \frac{\sum X_i}{n} = \frac{X_1 + X_2 + \ldots\ldots\ldots\ldots + X_n}{n}$$

where,

X = Symbol for mean

$\sum$ = Symbol for summation

index, and share the intellectual capital of faculty and research staff, namely their scholarly publications and teaching materials.

Chakravarty & Mahajan (2006) explain that Open Access (OA) means free availability of digital scholarly information without any financial, geographical, or any other type of access barrier. In the same regard Suber (2011) has defined OA as "Open-access literature is digital, online, free of charge, and free of most copyright and licensing restrictions. Harnad, (2001) defines Open Access as "free, immediate, permanent online access to the full text of research articles for anyone, web wide." Manjunatha and Moorthy (2011) said that, Open access publishing is to provide free access to full-text scholarly articles over the Internet. Butler (2002) emphasis that research institutions should create open-access electronic repositories, and making it compulsory for grant recipients scholars to deposit their papers.

2. Objectives of the Study

The objectives of the study are:

- To study the awareness of the scholars about digital repository and open access publishing.
- To identify the sources from where the scholars get latest information about digital repository.
- To examine the preference for publication and willingness to deposit their intellectual output of scholars.
- To find out the advantages of digital repository and its importance in teaching and learning activities.
- To suggest appropriate measures to improve the digital repository services for the betterment of its users.

3. Hypothesis

The following hypotheses are intended to be tested:

H_1 The scholars are aware about the digital repository and open access publishing.

H_2 Most of the scholars are willing to deposit their intellectual research output for open access.

Scholars Perception towards Open Access Publishing and Digital Repositories: A Survey

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Abstract: The study describes a survey of the open access publication and digital repository by the scholars of Mohanlal Sukhadia University, Udaipur. The questionnaire method is used to solicit the opinions of different scholars. Examines the awareness about digital repository, open access publishing, preference for publication of research articles, importance of digital repository in teaching and learning activities, sources for scholars' awareness about digital repository, willingness to deposit intellectual research output for free access, type of research output deposit on open access repositories and advantages of digital repository. Finally highlights the suggestions made by the scholars for improvement of digital repository.

Keywords: Digital Repository, Institutional Repository, Open Access, and Open access publishing

1. Introduction

Digital/Institutional repositories today are recognized as means of digitally archiving and enabling access to digital information. Repositories facilitate universities and colleges to manage and capture intellectual assets as a part of their information strategy. A digital repository holds a wide range of materials for a variety of purposes and users. It supports research, learning, and administrative processes as well. However, repository solutions are most viable and sustainable when built on standards.

In the information society, free flow of information is a fundamental principle for bridging the knowledge gaps between privileged and under-privileged communities. Open access to information and knowledge is a key contribution in provisioning universal access to information and knowledge (Meitei & Devi, 2008). Institutional Repositories (IR) are digital archive that capture, organize, preserve and disseminate that intellectual asset of a single institution or a group of institutions by forming a global system of distributed and interoperable digital libraries. (Gaur, Munshi & Murthy, 2004). In the same context Doctor (2007) stated that digital repositories are emerging technologies for knowledge sharing and management in academic institutions. Digital repositories collect, store,

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