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Indian Journal of Trauma and Emergency Pediatrics	4	10000	9500	781	742
Indian Journal of Waste Management	2	10000	9500	781	742
International Journal of Food, Nutrition & Dietetics	3	6000	5500	469	430
International Journal of Forensic Science	2	10500	10000	820	781
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International Journal of Pediatric Nursing	3	6000	5500	469	430
International Journal of Political Science	2	6500	6000	508	469
International Journal of Practical Nursing	3	6000	5500	469	430
International Physiology	3	8000	7500	625	586
Journal of Animal Feed Science and Technology	2	8300	7800	648	609
Journal of Cardiovascular Medicine and Surgery	4	10500	10000	820	781
Journal of Emergency and Trauma Nursing	2	6000	5500	469	430
Journal of Forensic Chemistry and Toxicology	2	10000	9500	781	742
Journal of Global Medical Education and Research	2	6400	5900	500	461
Journal of Global Public Health	2	12500	12000	977	938
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Journal of Orthopedic Education	3	6000	5500	469	430
Journal of Pharmaceutical and Medicinal Chemistry	2	17000	16500	1328	1289
Journal of Plastic Surgery and Transplantation	2	26900	26400	1954	575
Journal of Psychiatric Nursing	3	6000	5500	469	430
Journal of Social Welfare and Management	4	8000	7500	625	586
New Indian Journal of Surgery	6	8500	7500	664	625
Ophthalmology and Allied Sciences	3	6500	6000	508	469
Pediatric Education and Research	4	8000	7500	625	586
Physiotherapy and Occupational Therapy Journal	4	9500	9000	742	703
RFP Indian Journal of Medical Psychiatry	2	8500	8000	664	625
RFP Journal of Biochemistry and Biophysics	2	7500	7000	586	547
RFP Journal of Dermatology (Formerly Dermatology International)	2	6000	5500	469	430
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RFP Journal of Hospital Administration	2	7500	7000	586	547
Urology, Nephrology and Andrology International	2	8000	7500	625	586

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Contents

Research on Corona Virus Prior to the Outbreak of COVID 19: A Bibliometric Study

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Abstract

The outbreak of CIOVID-19 is an unprecedented and most disastrous phenomenon for the human society. In a very short span of time it became irrepressible across the globe, reaching almost every geographical location on the earth. Although, the scientific community was well aware about the existence of the corona virus mutations through previous researches conducted, and literature available regarding other traits of the same virus, it was indeed horrifying to encounter the infection caused by the deadly virus. The present study explores research on corona virus prior to the outbreak of COVID-19 to find out the dynamics of research in terms of different bibliometric parameters of publications. This study analyses different dimensions of research on Corona virus quantitatively and makes an observation of global contributions using Scientometrics indicators and other statistical tools.

Keywords: Bibliometrics; Corona Virus; COVID-19; Research publications.

Introduction

It was the last week of December 2019, and a diminutive news of yet another viral infection flashed on various news portals across the globe. Many scrolled down, some ignored and most of the human population was unaware that an unprecedented pandemic is knocking the doors of each one of us. But with a rapid haste, turning down all the speculations the ailment disembarked. "A novel Corona virus, 2019-nCoV, has been identified as the cause of an outbreak of respiratory illness that originated in Wuhan, China, and which has spread to several other countries around the world"(https://www.biomedcentral.com/collections/coronavirus). It changed the definition of survival and served some 'new normals' for the existing generations. But one thing was triggered

as a result of this outburst and that was 'research', on the probable causes, about the derogatory effects and towards the life saving measures. The prior research conducted on the different traits of the same virus and existing body of knowledge would have been a sigh of respite for the medical science fraternity to save the humankind by at least minimising the loss. Reportedly, More than 70000 research articles are published through different publishing houses after the pandemic but, a considerable number of research outcomes are also listed in various databases prior to the outbreak.

Objectives of the Study

- To find out the Year wise Distribution of Publications available prior to COVID-19

outbreak;

- To calculate the Relative Growth Rate and Doubling Time of Publications;
- To discover the Language Distribution and Bibliographic Forms of Publications;
- To list out the Core Journals associated with Publications;
- To locate the Highly Cited Research Papers among Publications;
- To find out the Most Productive Authors of the Publications available prior to COVID-19 outbreak and imply an Authorship Pattern;
- To search for the Most Frequently Appearing Keyword in the Publications;
- To dig out the list of Most Productive Countries contributing to the Publications;
- To find out the list of Most Productive Institutions contributing to the Publications available prior to COVID-19 outbreak.

Methodology Adopted

This study analyses research publications on Corona virus and makes an observation of global contributions in this field of research. The available literature published on Corona virus has been gathered, tabulated and analyzed in a quantitative manner. For the purpose, some Scientometrics indicators and few other statistical tools are used in this piece of work. The publications data has been retrieved from Scopus indexing database using the keyword "Corona virus" and selecting a period of ten years from 2010 to 2019. A total of 7754 records of published articles were analysed with MS-Excel on various scintometric parameters. Those are listed as, range, mean and frequency distribution in no particular order.

Tabulation, Analysis and Discussions

Year-wise Distribution of Publications

There is an enormous numerical difference between the amounts of literature published in the Pre COVID-19 and Post COVID-19 time spectrum. But this fact cannot be mistreated that, the former have acted as a supplementary document for the later. Many suggestive research outputs are available since the 19th century on this very issue. In this study though, the growth of publications on Corona Virus over a period of last ten years (2010-2019) indexed in Scopus has been considered for the analysis purpose. The results thus obtained are tabulated in table 1 along with the numbers of research papers published in the respective years

Table 1: Year wise Distribution of Publications.

Year	No. of Publications	%
2010	562	7.24
2011	517	6.66
2012	577	7.44
2013	809	10.43
2014	939	12.10
2015	1004	12.94
2016	917	11.82
2017	830	10.70
2018	807	10.40
2019	792	10.21
Total	**7754**	

From the above table it could be clearly observed that during the period under study, a total of 7754 publications were published globally, with average publications of 775 articles per year. A maximum of 1004(12.94%) numbers of articles are published in the year 2015 followed by 939(12.10%) numbers in 2014. A minimum of 517(6.66%) and 562(7.24%) contributions were made in 2011 and 2010 respectively. As a result it could be understood that the corona virus related literature increased from 562 in the year 2010 to the highest number 1004 in 2015. A sharp increasing trend in number of publications was noticed from 2011 to 2015 and a decreasing trend continued from 2016 to 2019. The following figure (figure 1) represents the tabular data in a graphic layout.
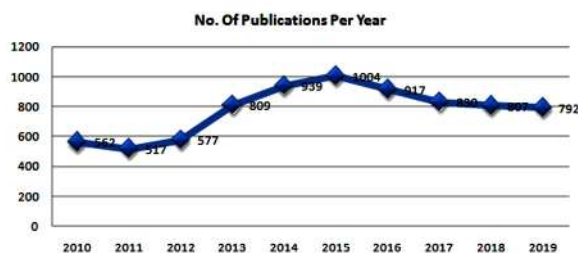
Fig. 1: Year wise growth of Publications on Corona Virus

The Relative Growth Rate and Doubling Time of Publications

"The Relative Growth Rate (RGR) is defined as the increase in number of articles per unit of time". The growth rate of Corona virus literature is determined by "calculating the relative growth rates and doubling time for publications". "The mean Relative Growth Rate (RGR) over a specific period of time Ra= (lnw2−lnw1) / (t2−t1), Where, Ra= Relative Growth Rate, lnw2=Natural log of total publications at time t2, w1=Natural log of total publications at time t1) and t2 - t1 = unit of

difference between the initial time and final time"

Doubling Time is time period that the rate of growth in publication frequency doubles. There is a direct equivalence exist between relative growth rate and doubling time. The doubling time of publications Dt (P) = 0.693/RGR

The Relative Growth Rate (Ra) of Corona virus literature is positive during 2012 to 2015 and

Table 2: Relative Growth Rate and Doubling Time for Corona virus Publications.

Year	No. of articles (*f*)	Cumulative (*cf*)	w1	w2	Ra= (lnw2−lnw1) / (t2−t1)	Dt=0.693/R(A)
2010	562	562	—	6.331502	—	—
2011	517	1079	6.331502	6.248043	-0.08346	-8.30348
2012	577	1656	6.248043	6.357842	0.109799	6.31151
2013	809	2465	6.357842	6.695799	0.337957	2.050559
2014	939	3404	6.695799	6.844815	0.149017	4.65049
2015	1004	4408	6.844815	6.911747	0.066932	10.35382
2016	917	5325	6.911747	6.821107	-0.09064	-7.64565
2017	830	6155	6.821107	6.721426	-0.09968	-6.95212
2018	807	6962	6.721426	6.693324	-0.0281	-24.6601
2019	792	7754	6.693324	6.674561	-0.01876	-36.9358
Total	7754	—	—	—	0.34306	-61.1308
Average	775.4	—	—	—	0.034306	-6.11308

negative form 2016 to 2019. . The highest and the lowest Ra were observed in 2012 and 2018 respectively. Similarly the doubling time (Dt) was highest in the year 2015 and lowest in 2019.

Language Distribution and Bibliographic Forms of Publications

Languages are carriage of communication. The more common the language of the information is, vaster is the circulation. Therefore, in almost every Scientometric study, the language wise distribution of papers is an essential factor to be considered. In the current study as well, the language factor was taken into account for the analysis purpose. Again the categorisation has been made in two major languages, English and Chinese. All other languages(28) are grouped under the 'others' category as the contributions were very slender. The data thus gathered are tabulated in table 3.

Table 3: Language wise Distribution of Publications.

Language	No. of Publications (%)
English	94.86
Chinese	1.49
Others(28)	4

The above table shows most of the research (94.86%) are published in English language. The next prolific language of publication of Corona virus research is Chinese (1.49%) followed by the rest 4% articles published in 28 other languages. A graphical representation has been provided below in figure 2 for comprehensible understanding.
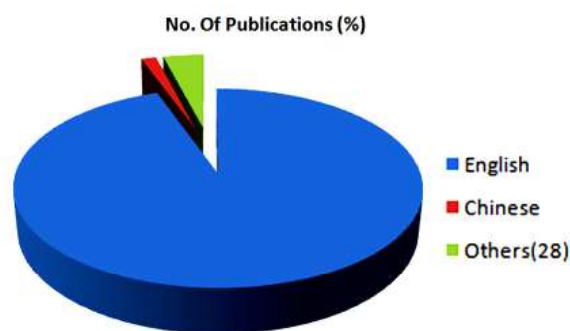
Fig. 2: Language wise distribution of Publications.

"The selection of an appropriate outlet often has an influence on the visibility and impact of an article. Consequently, it is interesting to analyse which type of publication format the researchers prefer for conveying their ideas and insights to the research community"(Heiling & Vob, 2014) The records on Corona virus prior to COVID-19, as retrieved from Scopus are again segregated into types of bibliographic forms they belong to. The collected data are decidedly diversified and fitted in 12 different categories such as journal articles, reviews, letters, news, editorials, notes, book chapters, short surveys, conference papers, erratum, book and conference reviews. Table 4 has listed out the outcome in descending order of the numbers of records in a tabular form.

Table 4: Bibliographic Forms of Publications.

Type of Publication	Number of Records	% Age
Article	5704	73.56
Review	977	12.59
Letter	245	3.16
Editorial	238	3.06
Note	237	3.05
Book Chapter	141	1.81
Short Survey	98	1.26
Conference Paper	70	0.90
Erratum	34	0.43
Book	5	0.06
Conference Review	3	0.03
Article in Press	2	0.02
Total	**7754**	

It is visibly clear from the above table, that, most of the publications, i.e. 5704(73.56%) are published as journal articles in different Scopus indexed journals. Following which, with a remarkable difference, review papers are falling at the second place with 977(12.59%) numbers of records. Rest of only 13.78% of the literatures are found in the form of other document types. Other notable preferred formats includes Letters (245 records, 3.16%), Editorials (238 records, 3.06%), and Notes (237 record, 3.05%). Counting from the least, Conference reviews and News feeds (Articles in Press) are the lowest contributors with 3(0.03%) and 2(0.02%) respectively. The above data has been shown below in a diagrammatic format in figure 3.
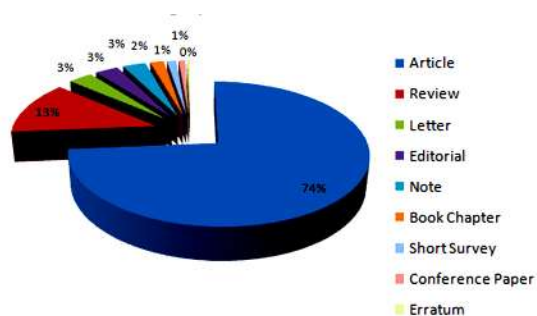
Fig. 3: Bibliographic Forms of Publications.

Core Journals Publishing Corona Virus Literature:

The preeminent indicator to evaluate any journal and measure the productivity of the same is 'Impact Factor' which quantifies the excellence of a journal and replicates its frequency as well as citation matrix. Two of the most significant scientometric measures are the journal itself and the most cited articles for depicting the journal quality. However, Conference Papers, Editorials, and Periodicals are also the highly useful when scholarly communication and current information dissemination. Again, scientists and researchers engaged in scientific research necessitate these publications a lot. Therefore, this study has listed out the top 20 journals which have published corona virus related documents irrespective of their forms. Table 5 can be referred to view the list in a descending order.

Table 5: Top 20 Core Journals in Publishing Corona Virus Literature.

Journal Title	Number of Documents	%age	JIF	SJR Rank
Journal of Virology	376	4.84	4.324	2.404
PLoS ONE	231	2.97	2.74	1.023
Viruses	165	2.12	3.816	1.786
Emerging Infectious Diseases	157	2.02	7.422	2.942
Virus Research	130	1.67	2.736	3.977
Archives of Virology	121	1.56	2.261	2.406
Virology	120	1.54	4.324	1.265
Veterinary Microbiology	116	1.49	3.03	1.138
Journal of General Virology	92	1.18	2.809	1.39
Virology Journal	87	1.12	4.324	2.406
Journal of Virological Methods	85	1.09	1.746	0.73
Antiviral Research	78	1	4.909	1.656
mBio	73	0.94	6.747	3.849
Scientific Reports	72	0.92	4.011	1.414
Vaccine	71	0.91	3.269	1.683
BMC Veterinary Research	70	0.9	1.792	0.848
PLoS Pathogens	64	0.82	6.158	3.909
Journal of Medical Virology	63	0.81	2.021	0.86
Virus Genes	61	0.78	1.776	0.732
Eurosurveillance	58	0.74	5.983	3.01
Other (1562)	5464	70.46	--	--
Grand Total	7754	100	--	--

The Corona virus research documents have been published in 1582 journals during the period 2010–2019. Table reflects that The *Journal of Virology* has highest number of publications (376 records, 4.84%) on Corona virus followed by *PLoS* ONE (231 record, 2.97%), *Viruses* (165 record,2.12%), *Emerging Infectious Diseases* (157 record, 2.02%), *Virus Research* (130 records, 1.67%), *Archives of Virology*

(121 record, 1.56%), *Virology* (120 record, 1.54%), *Veterinary Microbiology* (116 record, 1.49%), *Journal of General Virology* (92 record, 1.18%), and Virology Journal (87 record, 1.12%). It is revealed that 20% of the research publications have been placed in these top-10 core journals in this field. The following figure (fig-4) might supplement in understanding the records.
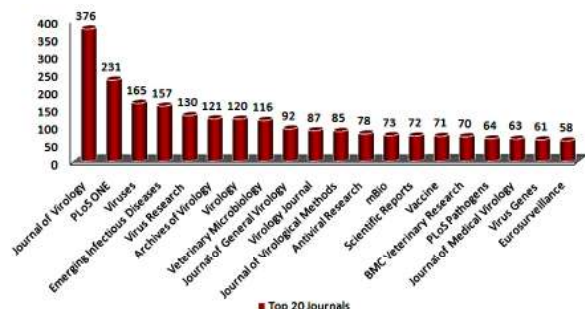
Fig. 4: Top 20 Journals.

Highly Cited Papers

During the study, while arranging the documents according to the numbers of citations they have received, it was found that a paper entitled "*Isolation of a novel corona virus from a man with pneumonia in Saudi Arabia*" published in the *New England Journal of Medicine* in the year 2012 has been cited highest number of times (1343 citations). Following this, the journal *Immunity* published an article entitled "*Immune Signalling*" *by RIG-I-like Receptors* in the year 2011 has 818 citations. Another paper entitled "*Hospital outbreak of Middle East Respiratory Syndrome corona virus*" published in the same journal in 2013 has received 575 numbers of citations.

Most Productive Authors contributing to Corona Virus Literature:

A pivotal share of the obligation has to be given to the contributor of the document as well. As in, the researchers and the authors of such biological narrations accounts on passing the information through generations. Had not they conserve record and share the research outputs to future scientific community, the current pace of the investigation and development would not have been possible. In this segment, the most productive authors are listed as per the numbers of contributions they have made during the stipulated time period. Table 6 presents the most prolific authors in the field of Corona Virus ranked on the frequency of research publications.

Table 6: Most Productive Authors of the Corona Virus Literature.

Author's Name	No. of Contributions	% Age
Drosten C.	105	1.35
Baric R.S.	100	1.28
Memish Z.A.	93	1.19
Zhang Y.	90	1.16
Zhang J.	87	1.12
Li Y.	86	1.1
Perlman S.	83	1.07
Wang Y.	76	0.98
Yuen K.-Y.	74	0.95
Zhao J.	67	0.86
Wang H.	66	0.85
Enjuanes L.	64	0.83
Wang X.	62	0.80
Haagmans B.L.	62	0.80
Jiang S.	62	0.80
Chen Y.	62	0.80
Wang J.	61	0.79
Chen J.	58	0.75
Tan W.	57	0.74
Wang Q.	56	0.72
Other(26071)	48288	-
Total	**49759**	-

The above table lists out the most frequently appearing author's name in the database. Including the entire contributor's name from the list it was found that a total of 49759 authors have contributed to the literature relating to the corona virus research prior to COVID-19 outbreak. Top 20 of them are placed in the table though along with their publication strength. At the first place appears Christian Drosten a German virologist with 105 numbers of publications during that period which counts 1.35% of the total records. Following him, an American, Ralph S Baric gains the second position having 100(1.28%) publications. Dr Ziad A. Memish, who is currently the deputy minister of health for public health in Saudi Arabia and recently designated as Director, WHO Collaborating Centre for Mass Gathering Medicine has published 93(1.19%) numbers of corona virus related documents in the stipulated time span.

Authorship Pattern:

Authorship pattern for the literature in corona virus has also been examined in this piece of work. As, author productivity and authorship pattern both parameters are important for scientometric studies and it is extremely helpful to know the pattern of

research collaborations in any field of research. Many more research works are though carried out by thousands of scholars, scientists and authors in corona virus research, the authorship pattern presented from 7754 resources, from the year 2010-2019 was of prime focus at this point. Most of articles contain the author's name but from 7754 resources, 78 didn't have any author name on them for record, at least in the database. The following table 6 throws light on authorship pattern of corona virus research publications.

Table 7: Authorship Pattern.

Authorship Pattern	No. of Records	% Age
Single Author	697	8.98
Two Authors	897	11.56
Three Authors	768	9.90
Four Authors	742	9.56
Five Authors	733	9.45
Six Authors	725	9.35
Seven Authors	635	8.18
Eight Authors	520	6.70
Nine Authors	452	5.82
Ten Authors	362	4.66
More than Ten Authors	1145	14.76

The total number of articles published is 7754 and they were contributed by 26792 authors. Out of these 9.08% of the articles are single authored. It shows that single author's share is very substantial. And two number of author produce 897(11.6%) publication, which is more than the top ten authorship pattern. Followed by third number of author produce 768(10%) of total outcomes. And from above table, single and two number of author publication was increased and rest of three, four, five, six, seven, eight, nine, and ten author articles was in decreasing trend. And there is an article which was written by 171 Author. And its Degree of collaboration (DC) is 0.90, which showing multiple author dominating over single author. The following figure shows a diagrammatic representation of the tabulated data.
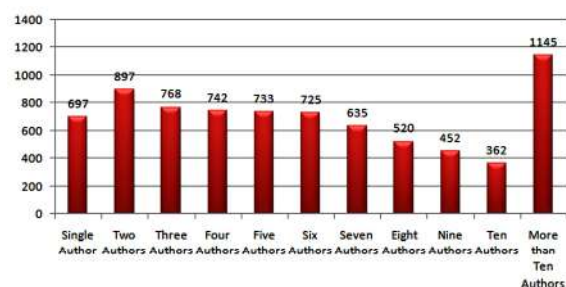
Fig. 5: Authorship Pattern.

Most Frequent Keyword appeared in the Publications

Keywords search has been the most practised phenomena when any database or search engine browsing is concerned. These specific words which direct the user to find the relevant and desired content, are either provided by the creators of the document of by the publication team while recording the metadata. The recent trend of the research field could also be identified from these keywords. Frequency of a keyword in any kind of research may evaluate the awareness and effectiveness of the term (concept). Another aspect is used of unique word also reflect the author's and scientist interest in the research and that word called 'Key Word' are one of the best indicators to understand the thought content of the papers, methodologies used and areas of research. In almost each scientomatric study the 'keywords' are factor of major interest. In this study, a list of top 20 terms which appeared the maximum numbers of time has been prepared and tabulated in table 7.

Table 8: Top 20 Most frequently used 'Keywords.

Row Labels	Record	Percentage
Coronavirus	542	2.79
MERS-CoV	264	1.36
Virus	149	0.76
Porcine epidemic diarrhea virus	145	0.74
SARS	131	0.67
Infectious bronchitis virus	129	0.66
SARS-CoV	128	0.65
MERS	118	0.60
Vaccine	113	0.58
Respiratory viruses	112	0.57
Middle East Respiratory Syndrome Coronavirus	111	0.57
Middle East respiratory syndrome	109	0.56
Spike protein	94	0.48
Influenza	85	0.43
Respiratory virus	78	0.40
Saudi Arabia	74	0.38
Respiratory syncytial virus	73	0.37
PEDV	68	0.35
Pneumonia	65	0.33
Viruses	64	0.32
Total (8397)	19403	

A total of 8417 keywords were found in the retrieval process. From the Table no.7, it is quite evident that, the word "coronavirus" is the most used key term provided by authors to their research output.

It appeared 542(2.79%) times in coronavirus publication retrieved from the year 2010-2019 from Scopus database. Followed by which is "MERS-CoV". It got the second place with 264(1.36%) records. The term 'Virus' has 149(0.76%) records among all of them. The following figure shows a graphical representation of the tabular data.

Fig. 6: Top 20 Most frequently used Keywords.

Most Productive Countries:

Most productive country is one of the most popular fields in metric studies, and the analysis is based on the author's affiliation. As the output of all countries is retrieved from Scopus, from the year 2010-2019, a list of affiliated countries has also been made. Considering the below mentioned data in table 8, the output is based on the affiliation of the first author. Again, an all author affiliation record is prepared and it was found to be 47375 numbers of authors as well as respective countries. To be an obvious result, the first author affiliation list have 7754 records and from that data, 349 (4.5%) recorded data have no information about country, which is mention as anonymous data in 3rd rank.

Table 9: Top 20 Most Productive Countries.

Considering only First Author			Considering All Authors		
Country	No. of Records	%	Country	No. of Records	%
United States	1790	23.08	United States	10922	23.05
China	1162	14.98	China	8777	18.52
Anonymous	349	4.5	South Korea	2578	5.44
United Kingdom	305	3.93	Germany	1861	3.92
South Korea	271	3.49	Saudi Arabia	1799	3.79
Germany	268	3.45	Netherlands	1539	3.24
Saudi Arabia	262	3.37	United Kingdom	1524	3.21
Japan	249	3.21	Japan	1518	3.20
Netherlands	238	3.06	France	1468	3.09
Canada	201	2.59	Hong Kong	1211	2.55
France	199	2.56	Brazil	1085	2.29
Korea	175	2.25	Canada	1031	2.17
Hong Kong	169	2.17	Italy	1006	2.12
Taiwan	165	2.12	Taiwan	898	1.89
Brazil	158	2.03	Spain	803	1.69
Italy	138	1.77	Australia	675	1.42
Australia	129	1.66	Switzerland	533	1.12
India	122	1.57	Singapore	489	1.03
Spain	113	1.45	India	472	0.99
Singapore	92	1.18	Turkey	440	0.92
Other(91)	1199	15.46	Other(136)	6746	14.23
Total 111	**7754**	**100**	**Total 156**	**47375**	**100**

From the above table the above data reflect from only first Author affiliation, United states got (1st) rank among the countries contributed the Coronavirus literature with frequency 1790 (23.08%) record of total contribution on the basis of affiliating countries of first Author and again it contribute 10922 (23.05%) record of all author affiliation countries. When consider only first author China (14.98%), followed by United Kingdom (3.93%), South Korea (3.49%), Germany (3.45%), Saudi Arabia (3.37%), Japan (3.21%), Netherlands (3.06%),

Canada (2.59%) etc. those hold rank 2 to 10 whereas 91 other countries jointly account for 15.46% of the first affiliating countries. A similar trend is shown in all author country up to rank 2, after that their big deviation is observed between in both the list. From the above table it is shown that the author or researcher shown interest for published paper in wider page limit, and promulgated pages range is not healthy for a research article. The following figure (figure 7) shows a comparative chart of top 20

most productive countries when only first author's affiliation is considered and top 20 countries when all author's data are considered.
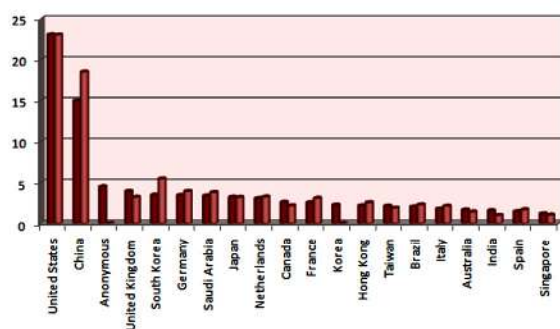
Fig. 7: Top 20 Most Productive Countries.

Table 10: Most Productive Institutions/Organisations.

Only First Author Affiliation (Name of the Institution)	No. in Articles	% Age
The University of Hong Kong, China	120	1.64
University of California, United States	79	1.08
Harbin Veterinary Research Institute, China	69	0.94
National Institutes of Health, United States	65	0.88
Seoul National University, South Korea	63	0.86
Utrecht University, Netherlands	58	0.79
University of Iowa,United States	52	0.71
Huazhong Agricultural University, China	49	0.67
Centers for Disease Control and Prevention, United States	48	0.65
Northeast Agricultural University, Harbin, China	46	0.62
Iowa State University, United States	44	0.60
National Institute for Viral Disease Control and Prevention, China	43	0.58
University of Washington, United States	40	0.54
Nanjing Agricultural University, China	39	0.53
King Saud bin Abdulaziz University for Health Sciences, Saudi Arbia	38	0.52
South China Agricultural University, China	37	0.50
University of Minnesota, United States	37	0.50
Wuhan Institute of Virology, China	36	0.49
Leiden University Medical Center, Netherlands	35	0.47
The Ohio State University, United States	35	0.47
Other(3001)	6272	85.85
Total	**7305**	**100**

of Hong Kong, china got 1st rank with 120(1.64%) records. Followed by University of California from United states got 2nd rank with 79 (1.08%) record, Harbin Veterinary Research Institute, China have 69(0.94%) publications with 3rd rank, National Institutes of Health, United States have 65(0.88%) publications, and Seoul National University, South Korea have 63(0.86%) publications of the total numbers of published document.

Most Productive Institution:/Organisations

An Institution's research metrics depend solely on the associating contributors. Considering it to be a significant indicator of the scientometrics, the affiliation information of the first author alone was taken for institutional affiliation analysis. The Table 9 indicates that the researchers' affiliation institutions' wise research productivity in the field of Coronavirus. The insights may help, for instance, to build fruitful research collaborations and reflect the global distribution of research.

In the above table, the top 20 most productive institutions and organisation which have more than 35 frequencies appeared in first author affiliation were shown. A total no of 7305 institution and organisation were found. Among them University

Conclusions

During the course of the research, many facts are revealed which were not in the glare of publicity for years. Though, there are certain limitations in the current piece of research, like time duration and keyword used, a formative speculation can definitely be drawn from it. Many documents might have not been captured as only one database (Scopus) has been considered for the study.

Variant names of the disease and the viruses could have been left out which primarily includes the research outcome on the same topic. However, such scientometric, bibliometric or review works always contributes to pave the way for further researches on the related disciplines.

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A Study on user Problems in Academic Libraries: with Special Reference to Government First Grade Colleges of Kolar District

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Abstract

Academic Libraries have first role to foresee support services to their users by providing books, diurnal and other physical resources and services necessary for learning and researches, They can only do this completely in the instant sparing difficulties by foresee current materials and services relevant to use necessarily, Failure to do this may create problems to users. The study search into such problems users meet in workmanship energetic application of available library resources. Literatures imply that such problems may include insufficient furnish of materials expedient and services inadequate manpower and kindred reading environmental conditions.

Keywords: Academic Libraries; Library resources; user problems; Kolar District.

Introduction

Academic libraries exist in institutions of higher education such as universities, polytechnics, colleges of teaching and technology and research institutes. They are established to back the breeding and research activities of the parent institutions through the furnish of books, diurnal, register, hearsay and other publications for the advancement of wisdom. The sine of academic libraries include:

- Provision of books and non-book materials required for the academic programmes of the faculties, institutes and units of the institutions.
- Provision of information resources for recreation and personal development of the clientele.
- Provision of reference and information services
- Provision of conductive reading accommodation for the users.
- Provision of inter-library loans and co-operation to improve user services.
- Provision of ICT devices such as telephone, e-mail, fax, computer and internet services to facilitate and enhance learning and research.
- Provision of skilled and dedicated personnel to enhance maximum utilization of the library facilities.
- Provision of reprographic services and bindery
- Provision of adequate security facilities to protect library materials and equipment.

Background of the Study

The Libraries of Kolar District is a branch of the Bangaluru North University,Kolar. The Government College Libraries started from 1945 to 2007 and each college libraries has its own collections from 20000 to 1,18,000 volumes of books from academic libraries of kolar district. In this collections nearly 30000 books were weed out due to damage and out of syllabus. In this college libraries the GFGC, Kolar has more number of collections of resources like books, publications & national & international journals than other college libraries.

The library serves five academic faculties and departments with a population of over 18,000 students. During the 2015-2020 academic years, a total of 4,724 library users registered with the library.

Table 1: Registered Users.

Category	2015	2016	2017	2018	2019	2020
UG Students	3845	3669	4245	5045	3860	4572
PG Students	205	117	1	237	47	118
Teaching Staff	34	16	21	15	30	34
Total	4084	3802	4267	5297	3937	4724

The table above indicates that undergraduate students are the main users of the library, recording 3,860 in 2015 and 4,572 in 2016. This calls for more attention to undergraduate users needs.

Staffing: The staff position in Academic Libraries of Kolar District is presented below:

Staff Position	No. of Staff
Prolessional librarians	8
Library assistants	5
Suppporting staff	12
Total	21

Library Opening Hours: Academic Libraries of Kolar District opens for a total of 47 hours a week during full academic session. The openings are however reduced during vacation. The opening periods are given thus.

Monday to Friday	10.00 AM to 5.00 PM
Saturday	10.00 AM to 3.00 PM

Purpose of the Study

Users and their needs must be clearly understood in order to provide effective services. Similarly, the services provided by the libraries must be based on positive objectives and related to the needs and interest of the user community. This can be enhanced through modern information and communication technology, because access to rather than ownership of information resources is today the focus of library services. Library resources procured and services not fashioned along the current needs of the users are bound to create user problems. It is based on the above premise that the study is intended

1. To identify the users problems encounter in the use of library Resources.

2. To identify the problems users encounter in the use of library facilities and services.

3. To identify the problems users encounter

with the library staff.

4. To make suggestions and recommendation to ameliorate the users problem.

Scope of the Study

Academic libraries in kolar district are found in the polytechnics, colleges of education, the academic colleges and research institutes. This study is focused on academic library with particular reference to kolar district. The library located in urban and rural area it's affiliated to Bangaluru North University. The academic college library services five academic faculties and departments with a population of over 15,000 students. The library is large enough to provide insight to user problems in an academic library.

Research Questions

In pursuit of the objectives and purpose of the study, answers were sought to the following questions.

1. What are the problems users encounter in the use of library materials?

2. What are the problems users encounter in the use of library facilities and services?

3. What are the problems users encounter with the library staff?

4. What measures can be taken to ameliorate users problems in the use of the library?

Review of Literature

Libraries generally are service institutions that hardly exist alone. Their relevance and needs therefore depend largely on the quality of service rendered to users. Libraries can effectively do this by providing relevant information available in print and non-print materials. This calls for continued user study which can be likened to market research in business. It is aimed at discovering patterns of use and level of awareness of users towards library services to determine the success or otherwise of library services and to identify the areas of improving in service delivery.

The above scenario points to **Fijallbrant (1990)**, that libraries should aim to make all users aware of information sources available both in the library and from external sources to enable users enjoy the search for information. Similarly, **Anyaoku (1994)**, argued that users effort at using the library are not good enough, without sufficient working knowledge of its available tools and resources, they usually end up in a feeling of frustration. Along

this line **(Okay 2000)**, clearly observed that the era when librarians simply assumed that they knew the needs of their clientele and are able to provide such needs adequately without the input of the users is over. The present day problems created by information explosion, coupled with the need to justify appropriate use of the reduced book votes to many libraries particularly in kolar district, demand that the necessary information resources should be acquired to meet the precise needs of users. It can therefore be deduced from the above authorities that user frustrations and problems could arise as a result of lack of knowledge of library resources and how to access and use them. This evidently will affect their quality of education. According to **Joyce (2000)**, there is a significant and positive relationship between knowledge of library use and academic standing of the user.

In a survey study of both graduate and post-graduate library users, **Ezeani (2005)**, noted that a reasonable number of students do not know their way around the library and where to get their resources. She called for an interpretation of library resources to users to ameliorate their problems. Eze (2005) in a related study noted that library environment affects the reading desire and development of users. He pointed out that library users cannot use the library resources to their fullest when the materials have been mutilated, stolen, misplaced or where the reading environment is unconducive for the purpose for which it was designed. User problems, the above showed, could emanate from provision of or lack of resources related to user needs, inadequate guidance to available resources, lack of knowledge of how to use and access library materials, unconducive reading environment and misuse by other users.

Methodology

The research method adopted in this study is a case survey. The study was conducted in March 2006 during the first semester of 2015-2016 academic sessions. The number of registered users/readers for the period under review is 4,724. The study population is the 400 users recorded and administered with questionnaire between the hours of 10 am-5pm the peak periods of library use by students. The sample population is the 300 users who returned their questionnaires ill usable condition. This number constitutes 75% of the study population. Instruments for data collection are questionnaire, documentary sources available in the library and direct observation. The modified four-point Likert scale was used to determine the

extent of response to the problems users encounter in the use of library materials, facilities and services. Data presentation is on tables while the computation is in percentage.

Data Presentation and Analysis

Table II: Users response to problems encountered in the use of library materials.

Nature of Problems by Users	Strongly Agree	Agree	Strongly Agree	Agree
Lack of Recent Text Books	210	90	-	-
Inadequate Journals	270	30	-	-
Lack of Reference Books	240	60	-	-
Lack of Newspapers & Magazines	30	30	180	60
Lack of Government Publications	180	120	-	-
Lack of Indexes & Abstracts	150	150	-	-
Theft of Books & Materials by Users	180	120	-	-

Table II indicates that the majority of library books, journals, magazines and reference materials are lacking, obsolete or inadequate. For text books 210 or 70% strongly agreed, 90 or 30% agreed. There was no negative response at all. Similar responses are given for gazettes and government publication 180 (60%) strongly agreed and 120 (40%) agreed; indexes and abstracts have 150 (50%) for each for strongly agreed and agreed. The implication of this is that users are faced with the problems of obsolete, lack and inadequate reading materials which certainly inhibit their studies and research in the library.

On the other hand, the responses to Newspapers provision are encouraging. 180 (60%) strongly disagreed with lack of newspapers as a problem, 60 (30%) disagreed also while 30(10%) each strongly agreed or agreed. The responses emanate from the fact that the library is current with provision of daily newspapers such as the Guardian, Vanguard and the Sun. The library should Endeavour to sustain this. Mutilation of materials poses serious problems to users. To this 120(40%) strongly agreed, 153(50%) agreed. Those that disagreed are only 18 (6%) and strongly disagreed 12(4%). Similarly, hiding and theft of library materials; holding such materials beyond due date are acknowledged user problems. Hiding and theft recorded 180(60%) for strongly agreed and 120(52%) for agreed. Indeed hiding, theft and holding of library materials beyond due

date constitute great problems to users as materials they require for study are not available on demand. These affect level of scholarship and output of research.

Analyses of table III indicate that for the provision of conducive reading environment 98 or 33% strongly agreed 150(50%) agreed; 9 or 3% strongly disagreed and 42 or 14% agreed. The positive response of the number that agreed 150

Table III: Users response to the Uses of library facilities & services.

Nature of library facilities & services	Strongly Agree	Agree	Strongly Agree	Agree
Conducive reading environment	99	150	9	42
Library Opening hours	135	153	6	6
Lending services	240	60	-	-
Catalogue bibliography Service	210	90	-	-
Current awareness services (CAS) and selective dissemination of information SDI	-	30	150	120
Internet-on-Line facility services	180	120	-	-
Photocopying / Reprography	90	210	-	-
Inter-Library services	-	3	120	150
Reference services	15	69	90	126
Binding services	-	-	240	60
Provision of reading carrels and seats	18	36	126	120

(150%) is traceable to the resuscitated central air-conditioners in all the three floors of the library. However, the less number that strongly agreed is 99(33%) may be attributed to the fact that there is no alternative power supply in times of power failure from the national grid. The negative responses are extreme reactions that can be taken care of if alternative power supply could be put in place. However, some complained of the interrupting music from the adjacent main hall, closure of the library to force users attend university functions even when not willing. In such situations, lack of alternative conducive reading rooms or classes and forceful ejection are problems users encounter which require management attention.

The library opening hours of the library received very impressive responses. 135 (45%) strongly agreed for adequate opening hours, 153(51%) agreed while strongly disagreed and disagreed had 6(2%) each. The above response emanates from the fact that the library is open Monday through Sunday, morning and afternoon, for a total of 84 hours a week. This is encouraging as it will afford many users opportunity to use the library a long time after lectures. This will also eliminate idleness and promote library use and reading culture among students and other interested users.

Provision of reading carrels and seats elicited serious negative responses. 120 (40%) disagreed 126(42%) strongly disagreed while agreed had 36 (12%) and strongly disagreed had 18(6%). The

reaction is not surprising following the fact that the library has a sitting capacity for 500 persons only while registered users in 2015 are 3,938 and 4,724 in 2016. The implication of this is that many users intending to use the library cannot be accommodated thereby creating user problems in terms of space.

Lending services have high acceptance response of 240 (80%) strongly agreed; and 60(20%) agreed. There is no negative response for lending services. The implication of this is that lending services should be maintained to enhance good library practices and remove problems of misuse of library materials.

In the area of catalogue, bibliographic display 210(70%) strongly agreed with the provision and 90(30%) agreed. There are no negative responses. The library has large and conspicuous catalogue display of library holdings. However, the problems hindering their effective utilization are improper filing of the catalogue cards and maintenance. This calls for more attention on the catalogue display to enhance access to materials. Shelf-guideless are labels to guide users on the contents of the shelves.

Those that strongly agreed to shelf guide are 180 (60%) and agreed 120(40%). There are no negative responses. The positive responses indicate that the library shelves have adequate shelf-guides. This is impressive and calls for sustenance. Though self-guides are directional, users complained not finding what they needed on the shelves. The

cause of this maybe wrong shelving by staff, theft of materials or that some students lack searching skills to locate library materials. On the other hand, responses to current awareness services (CAS) and selective dissemination of information (SDI) are not encouraging. Those that strongly disagreed to CAS and SDI services are 150(50%), 120(40%) disagreed. 30(10%) agreed and none strongly agreed. This shows that this very important library services are not provided. Users of the library would therefore encounter problems utilizing current information disseminated through this medium of services. This will affect quality of knowledge and research output.

The provision of internet online services has 180 or 60% for strongly agreed, 120 or 40% agreed. There are no negative responses. This is because the library has cyber cafe inside that provides internet browsing. This service will eliminate the problem of low patronage to the library as users will have the convenience of browsing the internet right inside the library rather than going out to search.

References services received low responses generally. Those that disagreed to the availability of the service are 126 or 42%, strongly disagreed has 90 or 30% while agreed 69 or 23% and strongly agreed 15 or 5%. The low responses are not doubtable as references services has correlation to currency of stock, SDI and CAS, interlibrary services and staff ability which generally were poorly responded to. The implication of this is that users may not be able to meet their needs which certainty will affect the quality of library services.

Bindery services were also negatively responded to. Those that disagreed are 60(20%) and strongly disagreed 240 or 80%. That is to say bindery services do not exist in the library. The user problem associated with non provision of this service is that when such support services are not rendered revenue from this point is lost which would have been used to support other areas.

Table IV: User response to the problems encountered with library staff.

Nature of Problem	Strongly Agree	Agree	Strongly Agree	Agree
Adequate Staff	-	-	180	120
Regularity of Service	90	120	120	90
Promptness to Service Delivery	75	123	150	120
Knowledge of user information needs	-	96	129	75

Analyses of table IV show that for adequate staff all responses are on the negative. Strongly disagree has 180 or 60% while disagreed has 120 or 40%. The implication is that the library lack adequate staff to cover service points to users. Regularity of staff at service points is generally negative. Responses for agreed have only 90 (30%), strongly disagree 120 (40%): and disagreed 90(30%). Where there is inadequate staff obviously regularity at service point cannot be achieved. The implication of this is that more hands are required to all service areas or points. Again, promptness of staff at delivery services has negative responses. Strongly disagreed have 123 (41%) disagree 102(34%). Only 75 (25%) responded adequate. Responses, here are similar to the above. However, users complained of staff delaying in attending to them. This lack of promptness by staff to attend to the needs of users should be discouraged through closer supervision. Again, inadequate staff at all levels could account for this.

Further negative responses are elicited for staff knowledge of user information needs. Responses for strongly disagreed have 129 or 43%, disagreed 75 or 25% while only 96 or 32% agreed. This problem may have arisen from the fact that most staff employed got in irregularly without being tested at interviews. Another likely cause is the fact that some staff are not dedicated to duty and lack training on the job rather there is rush to acquire certificates for promotion at the expense of the job.

Findings

The study following the research questions, responses and analyses reveals the following problems encountered by users at Enugu Campus library.

1. Most textbooks, journals, reference materials, gazettes are obsolete and in incomplete sets. There are also the findings that hiding of materials, holding beyond due date and mutilation cause problems to users in using the materials for study, research and reference.

2. The conducive reading environment of the library is interrupted by noise from the adjoining main hall usually used for social functions; lack of alternative. Power supply for the library and incessant closure of the library to' force students out to attend university functions disrupt readers' attention.

3. Opening hours of the library was found

adequate but is usually truncated by power failure especially in the night.

4. Improper filing of cards in the catalogue cabinets create problem of access and utilization of needed materials.

5. The numbers of registered users highly out number reading spaces. At examinations and peak periods, many users do not have places to read.

6. References services, current awareness services and selective dissemination of information in the library are not encouraging as a means of improved library services. There is need to improve these areas.

7. The provision of internet facilities in the library has helped to improve information needs thereby alleviating user problems.

8. Photocopying facilities need to be adequately serviced to maintain regular services to users. Also, there is no bindery as a support services and source of revenue to the library.

9. The library has inadequate staff that affects negatively their regularity at services points and promptness to service delivery.

10. Most of the staff responds poorly to user information needs. This may be attributed to lack of knowledge.

Conclusion

Improvement of library and information service delivery in academic libraries call for provision of current print and non-print materials in addition to the provision of adequate and conducive reading environment, maintenance of existing information service facilities and support systems. Above all trained, qualified and dedicated personnel must be ensured at all times to improve user services. This is the only way for academic libraries to remain relevant in the era of changing and challenging ICT facilities in information packaging and delivery. In conclusion, many academic libraries are trying their best in the provision of library services in the midst of harsh economies and poor funding. However, adoption of the recommendations above will place the libraries better than they are presently in library and information services to teaming users.

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Awareness and Attitudes Towards Copyright and Plagiarism Issue Among the LIS Professionals Working in Selected R & D Organizations in Bengaluru: A Study

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Abstract

Intellectual Property (IP) has increasingly assumed a vital role with the rapid pace of scientific, technological, business and medical innovations witnessing in the entire world today. The present study was conducted to examine the perception and awareness on Copyright and Plagiarism issues among the LIS professionals working in selected Research and Development (R & D) organisations in Bengaluru city. This study was conducted through a self-administered survey. A questionnaire was designed using both open-ended as well as closed-ended questions and some questions are based on the five-point Likert scale. A total of 57 LIS professionals were personally met, discussed with them, and responses are collected and recorded on various issued related to copyright and plagiarism. The major findings of the study reveals that, all the respondents 100% (N=57) are having basic awareness and knowledge on various aspects of Intellectual Property Rights(IPR). The large majority of the respondents are N=52 (91.2%) are helping their users in handling IPR issues in their respective R & D Organisations.

Keywords: IPR; Copyright; Plagiarism; LIS Professionals; R & D Organizations.

Introduction

Scholars from several disciplines are contributing to the field of Intellectual Property Rights and related concepts like Copyright, Patent etc., This is due to the centrality of Copyright and plagiarism, which are the trending concepts, even though LIS professionals are not legal advisors but it is very essential to be familiar with the copyright rules and regulations and handling plagiarism issues to perform their duty.[1] The domain of intellectual property is very vast therefore,it grown into one of the world's biggest and fastest-growing fields of law thereby necessitating the LIS professionals are well versed in this area to deal with IPRs issues across the national and international level. Thus, the purpose of this study is to examine the awareness and attitude on intellectual property rights (IPR) in general the copyright and Plagiarism issues in particular among the LIS professionals working R & D Organisations in Bengaluru city.

Objectives of the study:

- The analyse the Conceptual Awareness of various Intellectual Property Rights among the LIS Professionals working R & D Organisations in Bengaluru City.

- To examine the copyright and its related concepts among the LIS professionals

under the study area.

- To assessing the awareness and knowledge on Plagiarism issues among the respondents.
- To understand the respondents opinion in assisting the scientific community in handling of various aspects of IPR.
- To analyse the overall attitude of LIS professionals on IPR and Plagiarism issues.
- To suggest to LIS professionals to improve their proficiency, skills and competences in handling and assisting the scientific community on IPR and Plagiarism issues.

Review of Literature

Chinyowa (2021)[2] explains the intention of IPR in creating and expressing new possibilities. As digital piracy is increasing, there is a need for a revisit and reframe the IPR in the light of digitized and networked society. **Handke et al. (2021)[3]** examined the effect of copyright on data mining in academic research. The process of mining the data from the large sets of data to discover the new value structure to the data is considered as data mining. Data has been analyzed by using contemporary quasi experiment in different levels. Results provide a better evidence base for the policy and also show that DM is increasing the number of journal articles. **Rokni MB, et al. (2020)[4]** conducted study on Plagiarism in Iran, to identify the reasons, prevalence and also the different form of plagiarism. Analysis was done among the academic staffs, students and also personnel working in scientific journal offices by using the questionnaire and face to face interview. **Abbasi, P, et al. (2020)[5]** are made an useful attempt to design a model on the causes of plagiarism among the Iranians by using the ground theory study. The model is explaining deliberately the causes for committing the plagiarism. The results of this research help the policy makers and the activists in academic communities to construct the programmes and regulations to fight against plagiarism in Iran. **Bokosmaty, et al (2019)[6]** analysed the Canadian university students gender attitude towards plagiarism. The study aims to know the effect of gender on becoming a plagiarist. Research results shows that men are not predisposed toward having more permissive attitudes toward plagiarism than women, such findings indicate that students are often uneducated, unpractised, and confused when it comes to proper citation. **Beard et al. (2018)[7]** are proposed the model for copyright policy it covers various aspects which are highly ignored till today. The study uses one of the spatial

models of copyright called Circular model of Salop by using Salop's formulation for the analysis. The study reveals that copyright infringement besets are two different activities, which are subsumed under the single legal action, one is for the pirated work and another one is for the close imitation of the existing work. **Tania., et al. (2017)[8]** conducted astudy in 13 countries using online survey instrument to collect the data from library and information science professionals to analyse their level of knowledge and awareness on copyright and related issues. The study was pointed out that the gaps in existing knowledge of copyright with the copyright literacy among the respondents. Finally the researches recommend that the revision course curriculum by incorporating IPR and copyright literacy will certainly improve their professionals' skills and knowledge on IPR and Copyright issues.

Methodology

This study was conducted through a self-administered survey and the primary data was collected with the help of structured questionnaire. The questionnaire was designed based on the objectives of the study. The questions are consists of both open-ended and closed-ended and some questions are based on the five-point Likert scale. The questionnaire consists of four sections, section one reveals the demographic information including age, gender, designation, educational qualification, experience in the field, and also membership status in the professional associations, section two is about knowledge on IPR among the respondents, the third part concentrates on the copyright literacy among the LIS professionals and the last section deals with awareness on issues related to plagiarism among the LIS professionals working in selected R & D Organisations in Bengaluru City.

Data Analysis and Interpretation

For the purpose this study, there are 60 selected LIS professionals are chosen from various R & D Organisations in Bengaluru City, out of which 57 professionals are responded positively, thus the response rate is 95%. The collected data were tabulated and analysed with the help of MS-Excel sheet and same has been presented as follows:

Distribution of respondents by age

Among 57 LIS professionals, 31 (54.4%) of the respondents were male and 26 (45.6%) were female respondents. Further, the Table -1 indicates that, the highest number i.e., 21 (36.8%) of the respondents belong to the age group of 31-40 years, 14 (24.6%) of them are 51 years and above followed by 12

(21.1%) are in the age group between 21-30 years and remaining 10 (17.5%) respondent's age group is 41-50 years.

Table 1: Distribution of respondents by age.

Age group	Respondents	Percentage (%)
21-30 Yrs	12	21.1%
31-40 Yrs	21	36.8%
41-50 Yrs	10	17.5%
51 Yrs and above	14	24.6%
Total	57	100%

Education qualification of the respondents:

Among the 57 respondents, 35 (61.4%) of LIS professionals completed their Master's degree in Library and Information Science from different universities in India, 8 (14.0%) were completed M.Phil. degree, followed by 6 (10.5%) of the respondents obtained Diploma course and 5 (8.8 %) of them are completed BLISc degree and it is good to note that 3 (5.3%) professionals are awarded Doctoral degree in LIS.

Distribution of Respondents by their Professional Experiences

The maturity and professionals experience always helps to deliver quality of information resources and services to scientific community. In the context the Table–2 depicts that among the respondents population i.e., 19 (33.3%) LIS professionals are put up their professionals experiences more than 16 years followed by 15 (26.3%) respondents said that they have completed between 11 to 15 years of experience in their respective positions and 12 (21.1%) of them are possessed with 6 to 10 years

of experience. 11 (19.3%) of the respondents are stetted their journey in this profession with 1 to 5 years.

Table 2: Distribution of Respondents by their Professional Experiences.

Professional Experience	Respondents	Percentage (%)
1 - 5 Years	11	19.3 %
6 - 10 Years	12	21.1 %
11- 15 Years	15	26.3 %
More than 16 Years	19	33.3 %
Total	57	100%

The Conceptual Awareness of various Intellectual Property Rights

As Intellectual Property (IP) is a vast subject, it includes various concepts like Copyright, Patent, Trademarks, GI, Industrial designs, etc. In this context table 3 shows the level conceptual awareness of various IPR's among the 57 LIS professionals. 26 (45.6%) of the respondents are fully aware followed by 25 (43.9%) of the respondents are aware of Copyright. More than 50 percent i.e., 30 (52.6%) are aware of Patent followed by 20 (35.1%) are fully aware. 24 (42.1%) of the professionals are aware followed by 15 (26.3%) are having awareness on Trademarks.18 (31.6%) are somewhat aware followed by 15 (26.3%) are having awareness of Geographical indicators. A uniform number 16 (28.1%) of the respondents are responded as aware, somewhat aware, and not aware of the Trade secrets. Industrial design is also part of intellectual property, which is not known to the 19 (33.3%) of the respondents followed by 16 (28.1%) are responded as somewhat aware.

Table 3: The Conceptual Awareness of various Intellectual Property Rights.

Concepts of IPRs	Fully Aware	Aware	Some What Aware	Not Aware	Total
Copyright	26 (45.6%)	25 (43.9%)	06 (10.5%)	-	57 (100%)
Patent	20 (35.1%)	30 (52.6%)	07 (12.3%)	-	57 (100%)
Trademarks	15 (26.3%)	24 (42.1%)	13 (22.8%)	05 (8.8%)	57 (100%)
Geographical Indicators	11 (19.3%)	15 (26.3%)	18 (31.6%)	13 (22.8%)	57 (100%)
Trade Secrets	09 (15.8%)	16 (28.1%)	16 (28.1%)	16 (28.1%)	57 (100%)
Industrial Designs	09 (15.8%)	13 (22.8%)	16 (28.1%)	19 (33.3%)	57 (100%)

Further Table 3 clarifies that, as Copyright and Patents are belong to the educational sectors hence the majority of the respondents are fully aware of the concepts. Whereas other intellectual property rights like trademarks, GI, Industrial designs are coming under industrial sectors, respondents may be having less awareness about the concepts.

Awareness on various aspects of Copyright:

The present research is to examine various aspects of IPR in general and Copyright and Plagiarism in detail. For the purpose researcher raised some open ended questions and the rate of responses were described below.

- Copyright…? 80.7% of the respondents have given the right answer, i.e., Copyright is a legal right of an author.
- Types of sources protected under Copyright? 100% (N=57) respondents are aware that both print and electronic sources of information can be protected under copyright.
- Different kinds of works protected under the Copyright Act? 54.4% of LIS professionals having good knowledge on different kinds of works like Literary work, musical works, and new software are protected under the copyright act whereas 35.1% of the respondents having confusion on New inventions will come under the copyright? Or under Patents? Followed by 10.5% of the population responded as only the literary works are protected under the copyright act.
- Copyright can be given to ……? A total of 77.2% of the surveyees are well informed about the authorship of a literary work, i.e. copyright is a right given to all the authors of a particular work, followed by 21.1% are telling the only first author of any literary work will be able to take up his/her right called copyright.

In continuation with this, table 4 depicts the distribution of responses on various aspects of Copyright. It is found that the majority (N=48) of the participants are aware of the concept of "Fair use" followed by (N=47) 82.4% are familiar with the meaning of "Fair use". That is Fair use is (a) Academic use of copyrighted materials including research work with certain limitations. (b) Criticism or Review of copyrighted work.

The result in Figure 1 shows that 68.4% of the participants are enlightened with creative commons license (Creative Commons is an international network given to educational access, which is represented by CC). Creative Commons is not an alternative for copyright but it provides copyright licenses to creative works globally called Creative Commons licence.[9]

An international online resource that aggregates and presents publisher/journals open access policies is called SHERPA/RoMEO project.[10] As an information officer in the R & D organization, it is very important to be knowing about this project to provide the best service to their scientist, the results show that (N=29) are needed to upgrade themselves about this.

Further, an investigator of the present study

desired to know, whether the research institutions are having their institutional copyright policies or the set of guidelines for copyright. It is good to know that majority (68.40%) of the respondents are having their institutional copyright policies.

Table 4: Awareness on various aspects of Copyright.

Statements on Awareness	Yes	No	Total
Fair Use	48 (84.2%)	09 (15.8%)	57 (100%)
Creative Commons License	39 (68.4%)	18 (31.6%)	57 (100%)
SHERPA/RoMEO Project	28 (49.1%)	29 (50.9%)	57 (100%)
The institution has a Copyright Policy or Set of guidelines	39 (68.4%)	18 (31.6%)	57 (100%)
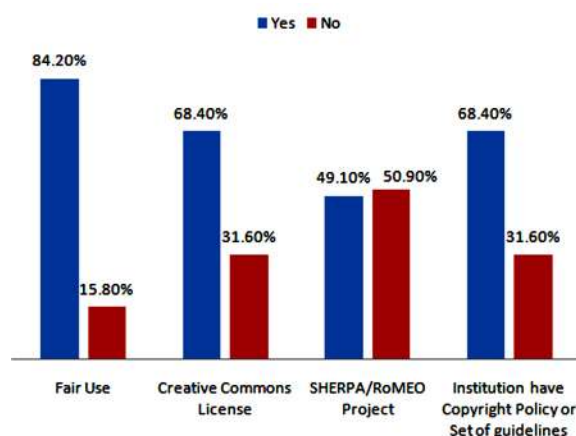
Fig. 1: Awareness on various aspects of Copyright.

Distribution of Respondents by Knowledge on Plagiarism

The distribution of respondents by knowledge on plagiarism is presented in the below table 5, it is found that 100%,i.e., all 57 participants of this survey, are aware of the term Plagiarism. Additionally, it is good to know that 80.7% of the respondents are aware of different types of plagiarism like Intentional plagiarism, Unintentional plagiarism, and Self-plagiarism, etc. Almost 89.5% of the interviewees are familiar with various tools available to detect the similarity of the content that is a plagiarism checker.

Among 57 (100%) LIS professionals 63.2% of the respondents of R & D organizations libraries depending on their head institutions for anti-plagiarism software, followed by 36.8% of institutions using Anti-plagiarism Software independently. Further, the most commonly used anti-plagiarism tool is Turnitin followed by

Urkund, the reason behind this is the number of resources covered in the software is high in these software when compare to all other anti-plagiarism tools.

It is good note that large majority of the LIS professionals under the study having knowledge on the term Plagiarism, types of Plagiarism and Plagiarism Checker software. But only 19.3% (N=11) respondents have conducted the training programs on using anti-plagiarism software for their users. On the other hand majority (87.7%) of the LIS professionals agreed that need to have a Universal Standard for the unique percentage of the level of plagiarism/similarity to be exempted for all the electronic resources. Further, it is observed from the table 5 more than 50% of the respondents are attended workshop/ seminars/ conferences to update their knowledge in copyright and Plagiarism issues.

Table 5: Distribution of Respondents by Knowledge on Plagiarism.

Respondents by Knowledge on Plagiarism	Yes	No	Total
The term Plagiarism	57 (100%)	-	57 (100%)
Types of Plagiarism	46 (80.7%)	11 (19.3%)	57 (100%)
Plagiarism Checker	51 (89.5%)	06 (10.5%)	57 (100%)
The institution is using any Anti-plagiarism Software	21 (36.8%)	36 (63.2%)	57 (100%)
Have you conducted any training program on using anti-plagiarism software for your users	11 (19.3%)	46 (80.7%)	57 (100%)
Need for Universal Standard for the level (%) of plagiarism to be exempted	50 (87.7%)	07 (12.3%)	57 (100%)
Attended any Workshop/Seminar/Conference on copyright and Plagiarism topics	31 (54.4%)	26 (45.6%)	57 (100%)

Perception of Responsibilities among LIS Professionals

Respondent's opinions about their responsibilities in assisting scientific communities of their respective organizations in handling various aspects of IPR can be seen in table 6. As LIS professionals are acting as a bridge between information creators and the information users, hence they must possess good knowledge in handling the same. It is found that 80.7% of LIS professionals are happy in helping the scientific community to protect their confidential information. 91.2% of the respondents are ready to assist their users in handling various aspects of IPR. 77.2% are ready to give information on international treaties on IPR. Followed by 82.5% of LIS professionals assisting their scientists on the patentability of inventions in their research area.

Table 6: Perception of Responsibilities among LIS Professionals.

Responsibilities of LIS Professionals	Respondents agreed	Percentage (%)
Protection of Confidential Information	46	80.7%
Handling IPR issues	52	91.2 %
Information on international treaties on IPR	44	77.2 %
Patentability of inventions in their research field	47	82.5%

Table 7: Attitude towards IPR and Plagiarism:

Statements	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Total
Plagiarism is an Academic Dishonesty	23 (40.4%)	25 (43.9%)	06 (10.5%)	02 (3.5%)	01 (1.8%)	57 (100%)
IP Acts in India will protect researchers Intellectual work	13 (22.8%	39 (68.4%)	04 (7.0%)	01 (1.8%)	-	57 (100%)

Attitude towards IPR and Plagiarism:

Table 7, depicts that the overall attitude of the Library and Information Science professionals working in R & D organizations in Bengaluru city. It is found that N=25 (43.9%) of the respondents are agreed, followed by N=23 (40.4%) are strongly agree to the statement "Plagiarism is an Academic Dishonesty". Among 57 (100%) LIS Professionals, 68.4% of them are agreed that, "IP Acts in India will protect Researcher Intellectual work", followed by 22.8% are strongly agree with the statement. It clarifies that the true researcher will always follow research ethics.

Recommendations to avoid Plagiarism:

Table 8 listed out various suggestions to avoid the percentage of similarity/plagiarism. A majority of the LIS professionals 75.4% (N=43) responded as

"All the above", which means as a researcher he/she must do the original research by giving credit to the original author/s that implies acknowledging the resources he/she referred to write a particular paper. While acknowledging, a researcher must follow proper citation methods. These are the research ethics, as a good researcher must follow research ethics to get a quality research output to contribute to society.

Table 8: Recommendations to avoid Plagiarism.

Recommendations to avoid Plagiarism	Respondents	Percentage
Do the original research	09	15.8%
Give credit to the author/s	01	1.18%
Use proper citation methods	04	07.0%
All the Above	43	75.4%
Total	57	100%

Suggestions and Conclusion:

The findings from this surevey underline the critical role of library and information science professionals as sources of advice on copyright and related matters.[11] This study proves that all N=57 (100%) respondents are familiar with two commonly used IP rights (Copyright and Patents). 91.2% of respondents agreed that it is the responsibility of LIS professionals to assist their scientific community in handling IPR related issues, and also 80.7% were happy to guide their users on the protection of confidential information. To achieve this as 100%, the proper method of education need to be widespread while teaching in professional qualifications along with continuing education program is essential for the senior working professionals to improve their proficiency, skills, and competencies with the current developments in the field. The study also suggests that every organization needs to set up well-defined guidelines or copyright policies. This suggestion is to make every researcher/scientist and also LIS professionals to be aware of the current local, national, and also international level IPR, Copyright, and also Plagiarism related issues globally.

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Uses of Blockchain Technology in Libraries

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Abstract

Blockchain that is known as the distributed database of records or public ledgers of all transactions or digital events conducted and shared by participants/nodes is a relatively young technology. However, cryptocurrency was first to adopt this technology. Since then, it is being used in many of the fields. The notion of blockchain technology and its applications in library services are discussed in this article.

Keywords: Blockchain; Distributed Database; Libraries.

Introduction

It has been noted that almost over a decade ago in 2008, Satoshi Nakamoto, the anonymous creator of Bitcoin, explained how blockchain technology, a distributed peer to peer linked structure, might be used to solve the problem of transaction order and avoid double spending (Nakamoto, 2008). According to Nakamoto, bitcoin organises transactions into constrained size structures called blocks with the same timestamp, and the network's nodes as in charge of connecting the blocks in chronological order, with each block carrying the hash of the preceding block to form a blockchain (Crosby et al., 2016). Blockchain structure can keep a reliable and auditable record of all transactions. Hoy (2017) also says that blockchain serves as a primary mechanism for Bitcoin's operation as well as the fundamental operations of many other technologies.

So blockchain is a decentralized or distributed database that comprises of multiple devices but not to a common processor and organize data into blocks or records which have cryptographic validation. They are timestamped and are linked to previous records so that they can only be changed by those who own the encryption keys to write that fields.

Since 2008, various developments took place in this field. Table 1 (based on Hassan et al, 2020) gives an idea about the evolution and development of blockchain technology.

Table 1: Evolution and Development of Blockchain Technology.

Year	Events
2008	Bitcoin's whitepaper was published by Satoshi.
2009	First Bitcoin block was created.
2010	First Bitcoin cryptocurrency exchange Mt. Gox started working.
2011	Silk Road launched with Bitcoin as payment method. Bit Pay was first Blockchain-based wallet. Emergence of other cryptocurrencies like Swiftcoin, Litecoin.
2012	Coinbase, started as brokerage for Bitcoin.
2013	Ethereum, a blockchain-based distributed computing platform was proposed.
2014	With crowdfunding the Ethereum Project was started. Ethereum genesis block was created.
2015	Blockchain trial was initiated by NASDAQ. Hyperledger project was started.
2016	Ethereum DAO code was compromised and hacked. Emergence of permissioned blockchain solutions.
2017	Seven European banks, announced their program to develop a blockchain-based trade finance platform in collaboration with IBM.
2018	Blockchains potential got revamped by more investments in wide range of use cases.

Today, blockchain offers a wide range of applications in various fields, including higher education, the arts, health, science, literacy, medicine, and more (Chen, Xu, Lu and Chen, 2018).

Overview of Blockchain

A blockchain is essentially a digital log of transactions that is copied and distributed throughout the blockchain's complete network of computer systems. It stores data in such a manner that it is difficult or impossible to alter, hack, or defraud it. It is a form of distributed ledger technology in which transactions are recorded using a hash, which is an immutable cryptographic signature. Each block on the chain comprises of a number of transactions, and each time a new transaction takes place on the blockchain, a record of that transaction is added to the ledger of each participant.

Simply saying, a blockchain is a distributed append only timestamped data structure that enable us to create a distributed peer to peer network in which non-trusting individuals can communicate with each other in a verifiable manner without the use of a trusted authority. To do so, think of blockchain as a collection of interconnected processes that provide particular features to the infrastructure, as shown in Figure 1 (Source: Casino et al., 2019). Each component based on Casino et al (2019) is detailed out below:
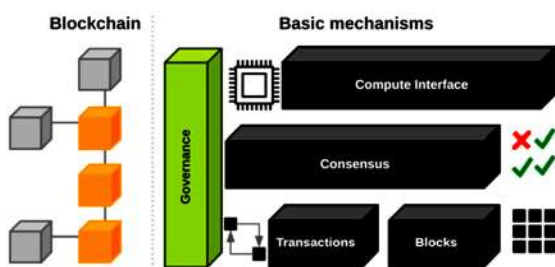

Fig. 1: An Overview of Blockchain Architecture

It should be emphasised that signed transactions between peers, which signify an agreement between two participants and may entail the transfer of real or digital assets, the execution of a task, and so on, are at the lowest level of this infrastructure. This transaction, however, is signed by at least one participant and broadcast to its neighbours. Any entity that connects to the blockchain is referred to as a node. Full nodes, on the other hand, are nodes that validate all of the blockchain rules which organise the transactions into blocks and are in charge of determining which transactions are genuine and

should be included in the blockchain and which are not.The second layer is consensus, which may take many forms, but the most popular is PoW (Proof of Work), which entails solving a complex computational task, such as discovering hashes with certain patterns, to assure authentication and verifiability. Rather than dividing blocks proportionately to miners' respective hash rates, PoW divides stake blocks proportionately to miners' current wealth, making the selection process fairer and preventing the network's wealthiest player from controlling it. However, PoS (Proof of Stake) and DPoS (Delegated Proof of Stake) are also there where selection of each round of node who creates a new block depends on the held stake rather than the computational power; and they make the stakeholders give the right of creating blocks to the delegates they support instead of creating blocks themselves respectively (Zhang and Lee, 2020).

The other layer that allows blockchains to offer greater functionality is the Compute Interface. It should be noted that a blockchain effectively stores a state consisting; for example, of all the transactions made by users, allowing for the calculation of each user's balance. However, for more advanced applications, complex states that are updated dynamically using distributed computing are required. SCs, which employ blockchain nodes to execute contract conditions, have arisen as a result of this necessity.

Finally, there's the Governance layer, which broadens the blockchain architecture to include human interactions in the real world. Though, blockchain protocols are fully defined, yet they are also influenced by contributions from a variety of people who incorporate new methods, enhance blockchain protocols, and repair the system. These components, however, are required for the evolution of any blockchain. Thus, blockchain governance is concerned with how these many players collaborate to create, maintain, or alter the inputs that comprise a blockchain.

Characteristics of Blockchain

Blockchain bears many characteristics. But Sanjay and Hasan (2020) have assigned following important characteristics to blockchain:

Validation/Consensus

Validation means the miners that solved the puzzle are rewarded and the block is distributed through the network. There are many types of consensus algorithms to validate a block into a chain like: Proof of Work (POW), Proof of Stack

(POS), Proof of capacity, Proof of elapsed time, etc.

Immutable

Block once added in a blockchain, it becomes impossible to delete it or modify it. Because a small change in the block could lead to a new block with a new hash.

Replicate/ Peer-Peer Network

Blockchain uses a distributed network that is termed as a public ledger in which every node/ participant has a copy of each transaction.

Transparency

Full transparency is there because all transactions are visible to everyone, and all participants know about who performs what action, at what time by themselves.

Secure

All the data are stored in many computers and there is no central authority. So, hacking of every node in the network at the same time is quite impossible and costly. Hence, blockchain technology seems to be more secure.

Smart Contracts

It is peace of code which contain specific terms and conditions. A set of conditions are made for the operation of smart contracts to which all users agree (Christidis and Devetsikiotis, 2016), whenever these conditions are satisfied, automatically the terms of the agreement are carried out.

Uses of Blockchain

The finest application of blockchains may be observed in the banking industry, where banks can collaborate and push their clients' transactions over the same blockchain. Beyond transparency, blockchain allows transaction audits in this way (Casino et al, 2019). Due to its popularity, the blockchain technology is becoming increasingly relevant (Zhao et al., 2016) and around 1000 of C-suite executives declare that they are considering or have already been actively engaged with blockchains (IBM, 2017). Further, the researchers and developers are already aware of the capabilities of the new technology and explore various applications across a vast array of sectors (Christidis and Devetsikiotis, 2016).

Today, its searches have many applications in other areas. The transition from blockchain 1.0 to blockchain 3.0 will deploy blockchain applications primarily in college, arts, health, science, literacy, medicine and more (Chen, Xu, Lu and Chen, 2018). Blockchain can also be a useful answer to a variety of difficulties that universities face, and it can be used for a variety of activities such as certification, monitoring, verification, and sharing, among others.

Barriers in Using Blockchain Technology

Inspite of various applications of blockchain technology, there remain several obstacles to overcome. There are several problems and issues, such as how to build an acceptable consensus procedure. Furthermore, blockchain consensus is a big issue, as all nodes must maintain the same distributed ledger. Due to the presence of the centre server in conventional software design, however, consensus is seldom a problem. But the other nodes must only be aligned with the server (Zhang and Lee, 2020). However, in a distributed network like blockchain, each node serves as both a host and a server, and it must communicate with other nodes in order to achieve a consensus.

Zhang and Lee go on to say that certain nodes will go down or offline at times, and that there will be malevolent nodes that will significantly disrupt or ruin the consensus process. Only a good consensus procedure can withstand these occurrences and reduce the impact so that the ultimate consensus outcome is unaffected. Similarly, the consensus process utilised by the system must be compatible with the blockchain type being employed. There are available public blockchains, consortium blockchains, and private blockchains, each with its own set of applications. But, the consensus protocol chosen must meet the requirements of each application scenario.

Uses of Blockchain Technology in Libraries

Though, the concept for the use of blockchain in libraries is in its initial stage and its utility is yet to be proved. But this technology has the potential to enhance the role played by libraries within their communities. Sanjay and Hasan (2020) has listed various areas where blockchain technology can be applied: digital rights management, plagiarism, payments, users to user loan, interlibrary loan, and scholarly publishing. Figure 2 based (https://tinyurl.com/fxms92tw) also explains these areas well.
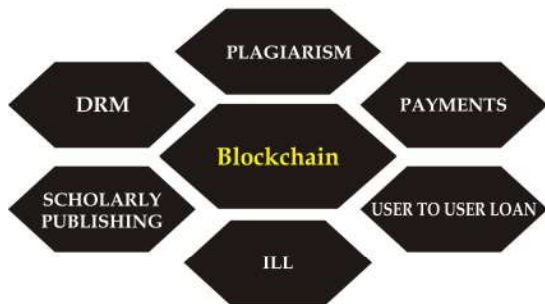
Fig. 2: Various Areas of Application of Blockchain in Libraries.

However, more elaborately Fakiragoudar (2021) has listed the following possible uses of this technology in libraries.

Building a Metadata System for Libraries

This technique can be used to solve inventory centralization and traceability issues when the library starts creating permissions without the metadata blockchain to get around some categorical restrictions. First, this process is to generate a public and private key and then these keys are managed using digital wallet software. Then, other genesis blocks are created and later new or changed blocks are created. Records are sent as blocks by nodes for verification according to a consensus algorithm. Only the top level node is needed to store a copy of the entire blockchain, and other organizations can decide whether to use the short version or the full version.

Protecting Digital First Sale Right

Library may secure the right of a first digital sale where an online blog providing a way to buy and rent the e-books using decent blockchain can be created. Channel creators can decide whether to allow other channel members to preview their work early on with permission, or others can borrow unlimitedly or without paying unnecessarily high fees.

Connecting the Network of Libraries

Blockchain may allow the digital information to be distributed rather than simply copied. So, the information is continuously shared and coordinated among multiple nodes, with each node holding the same copy of the database as evidence. Though the transactions in this database have been audited and agreed upon by consensus but the public ledger has virtually no control over a single entity with this distributed change tracking method. So, there is the possibility of eliminating even a single error and enabling transaction validation without the need

for a single transaction.

Conclusion

Summing up, it can be said that Blockchain technology is one of the present day library era developments that lists the records called blocks which save information publicly and in chronological order ensuring that the facts are encrypted using cryptography to ensure that the privacy of the user is not always compromised and facts cannot be altered. Because of this truth blockchain has the notable capacity in modern-day libraries is simple (Chen et al., 2018).

However, in future, blockchainis expected to be used by the users to discover the report changes and save the records tampering. But the librarians and other staff have to take a look at the structures and tactics currently in use to peer whether or not they will pay blockchain. Still, this is a vast and untapped area of study that has both challenges and opportunities to the upcoming educators, researchers and developers (Vysakh and Rejendra Babu, 2020). Never the less, the technology will be more visible in libraries as many of the libraries globally have started working on how to harness these in libraries and hoped this technology will become more not unusual in libraries, and as such many libraries round the world have commenced to analyse ways to use it.

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Acceptable use of Electronic Resources in School of Law, Galgotias University: A Case Study

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Abstract

The principle objective of this article is to examine and investigation the use of electronic resources in Galgotias University, School of Law library, and it is found that on the evident impact of electronic resources on their scholarly viability and on the issues they experience when utilization of electronic resources. Design/ methodology/approach: An online survey was conducted at GUSOL, using Google Forms sharing the links with different social media platforms and official emails id to get the response. The 1108 questionnaire was distributed to all the patrons and received the 1023 respondents revert it is almost, 92.33%. Findings: The finding of this study is the maximum no of respondents are aware with legal databases and e- journals, The results showed adequate use of electronic resources used by the GUSOL patrons. The faculty, researcher and postgraduate students are mostly used the electronic resources for writing research papers and e-databases are used for legal cases and as for under graduate students are concern they are using the e- resources for their assignment purpose Originality/ value: The results and recommendations of this study are expected to be beneficial to Galgotias University School of Law Libraries Administration, specifically, in terms of knowing what the patrons are used and prefer, seeking behavior towards electronic resources and the problems they are facing, when searching electronic resources.

Keywords: Electronic Resources; Legal Databases; e-learning and e- journals.

Introduction

Galgotias University offers a new range of front line Library resources to help students reach their full potential with the ultimate goal of providing students and employees with the ideal contemporary climate for learning and exploration, Galgotias University focuses on an anxious interest in the progress of structures and offices, the consequences of which are undeniably noticeable today. The School of Law library gives magnificent scholastic feeling to its customers ie. The employees, researchers, understudies and other staff of the college where they can get to great many exploration and learning resources on paper and on the web, and get benefits from the libraries responsibility of giving excellent resources and administrations with the quickly developing assortment, both in advanced and print structure utilizing the cutting edge offices, the Library is adding to the University main goal of turning

into an elite Establishment. The assortment of the Library is rich and various, particularly as far as the broadness and profundity of inclusion.

The Moot Court Hall

Mooting is a fundamental device for granting legal preparation. The Faculty of Law values Moot Court practices and our Moot Court practices allow substitute students to participate in Moot Court rivalries and win bushes for their Moot abilities. The Law School is equipped with the best offices in Moot Court to ensure that the deputies benefit from the authentic climate of the court.

Research Mentors

The research mentors are accessible by a few points after the legal points and provide data on things accessible on paper and online in the law school library. The GU, research guides are accessible graduate to PhD students as for all potential areas of law, The mentor explain to researcher the exploration work will be a unique work described either by the revelation of realities, or by a new methodology towards the understanding and use of realities.

Legitimate instruction assumes a fundamental role in the work of the country, as it promotes the resolution of questions by the method established by law in a serene manner. The rule of law is an essential element of the Indian Constitution and a legitimate quality education is a sine qua non to promote it. In this way, it is essential that young people receive a legitimate education, because in addition to providing them with information about the law, it would make them understand the importance and meaning of qualities based on popularity. In addition, the law assumes an important part in the financial advancement of the country and has its underlying foundations in legal instruction. As part of a constant improvement in the offer of legitimate quality training, Galgotias University is moving in this direction by presenting its educational plan for legal education.

The Faculty of Law constantly tries out the school and extracurricular exercises of the substitute students. The library is rich in a large number of volumes of books, academic and advertising journals and other reference documents. Also, it deals with various online legal data sets. Wi-Fi grounds allow replacement students to access a legitimate online information base productively. The study rooms are exceptional with LCD projectors and other computer devices for education. A large theater serves as a requirement for different courses, meetings and different occasions. Law School emphasizes openness with its feet on the ground. In its educational plan, it gives an important place to clinical legal training. Assistant with a range of legal associations, law firms, NGOs, etc.
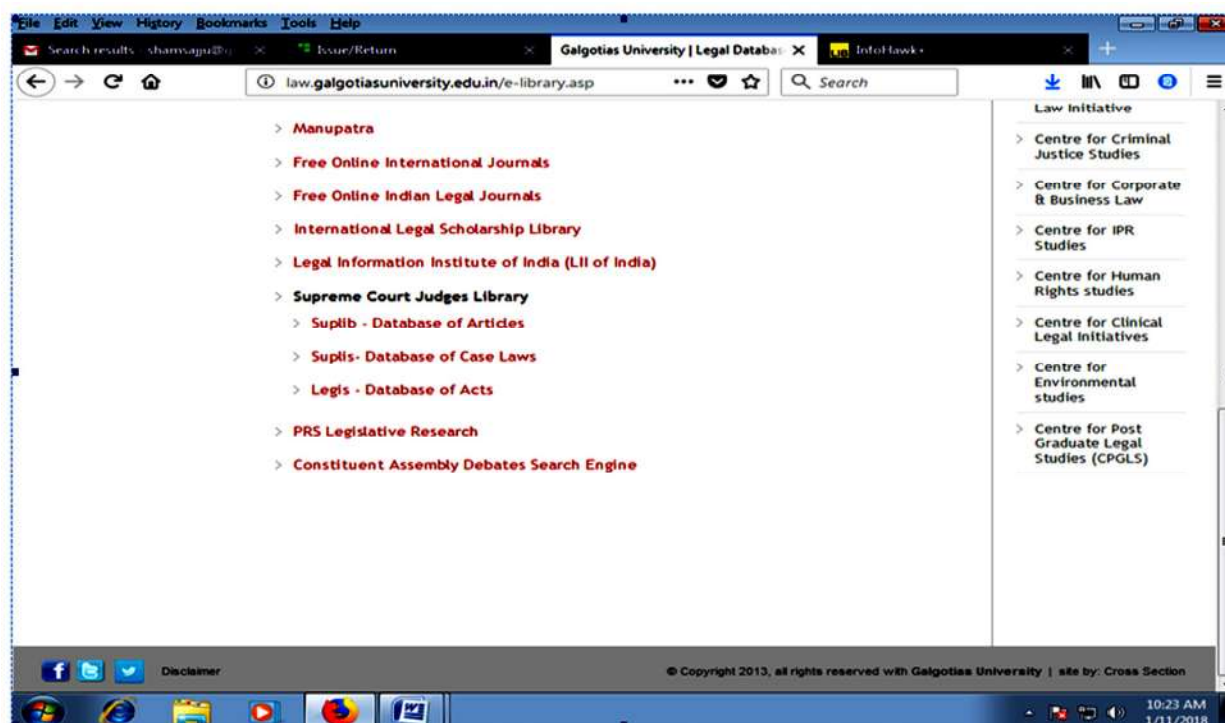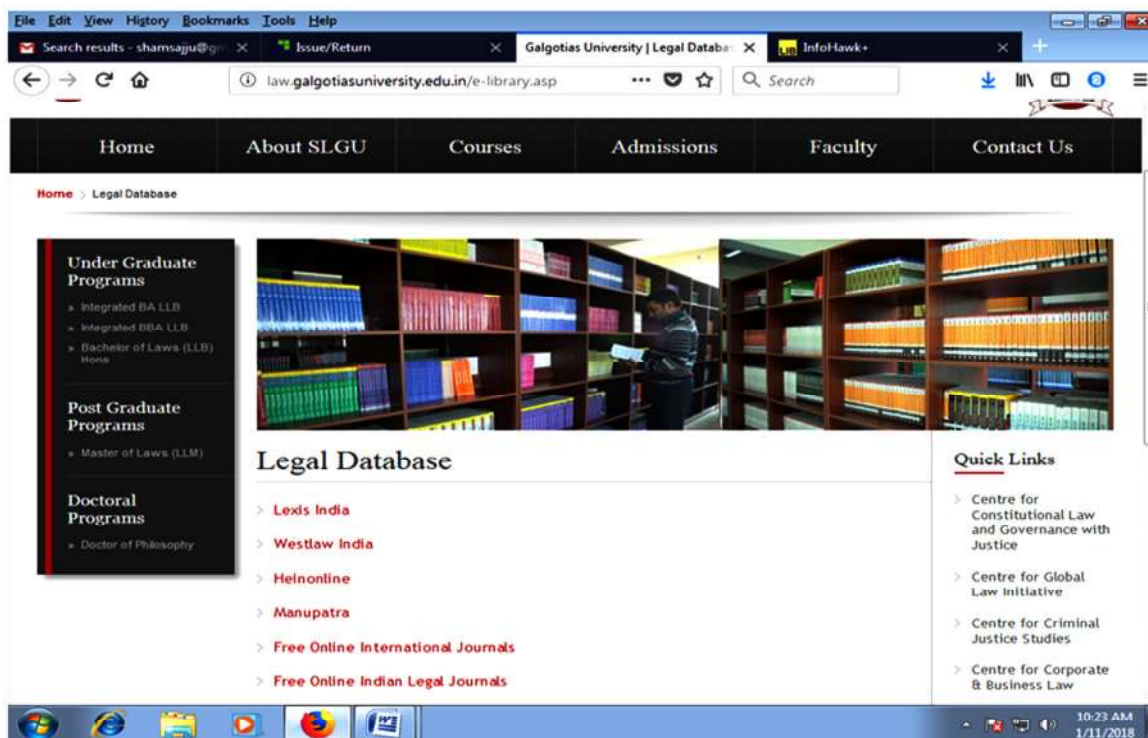
Legal Database

Lexis Nexis

It is one of the world's leading providers of explicitly planned substance-based work process arrangements for experts in legitimate industries, boards of directors, business, government, law enforcement, accounting, and school affairs. Lexis Nexis pioneered online data with its Lexis Nexis.

Hein Online: Hein Online is a head online dataset containing in excess of 160 million pages and 160,000 titles of legitimate history and government reports in a completely available picture based setting. Hein Online defeats any hindrance to credible survey by giving thorough consideration since the dispatch of in excess of 2,400 law-related diaries. Notwithstanding its tremendous assortment of law diaries, Hein Online contains the whole Legislative Register, Government Register, and Code of Bureaucratic Guidelines, the full consideration of US reports tracing all the way back to 1754, and extensive data bases devoted to guidelines.

Westlaw: Thomson Reuters Westlaw is the company's most beloved online forensic administration, seemingly endless time after time. With Westlaw, you can quickly and without hesitation locate the legitimate data you are looking for so that you can build the most substantiated dispute possible. Keep in mind that it depends on a specific law, for the reason that your education depends on it. Know that your exploration ends with access to the most complete set of legal data.

Manupatra: Manupatra, pioneer of online forensic exploration in India since 2001, is India's leading legitimate data asset. He is the largest Indian and international material substance aggregator, linking essential data, optional material and proprietary logical substance. The company started operations in 2000 and submitted its lead article, the online news base www.manupatra.com, in August 2001. It currently has transport capabilities in online, print and mobile media. In the long term, Manupatra reevaluated the forensic review by including natural and smarter legitimate scanning instruments with the admission of data sets, which subsequently strengthened the training of attorneys. Manupatra's review ensures that clients spend their energy researching and defining the data, not putting it together. The refined legal instruments of exploration, which were the territory of the special, were brought to the majority by Manupatra.

Literature Review

Mvelo Nature Msezane and Petros Dlamini (2021) the purpose behind the review was to examine the degree of utilization of electronic

resources (e-resources) by postgraduate understudies at the College of Zululand in South Africa. The hypothetical premise of the review was educated by the Innovation Acknowledgment Model proposed by Davis in 1989. The review took on a post-positivist exploration worldview to empower various points of view by utilizing both quantitative and subjective examination draws near. An aggregate of 66 surveys were shipped off postgraduate understudies and 46 (70%) were returned. Furthermore, interviews were led with eight data administrators and two e-asset curators from the College of Zululand.

Leonard, Anna, Hamutumwa, Nampa Meameno, and Mnubi-Mchombu, Chiku (2020) The reason for this paper is to look at the utilization of e-assets by the Personnel of Law's scholarly staff at the College of Namibia's (Unam's) principle grounds. The review expected to decide their degree of consciousness of electronic assets (e-assets) accessible to them, how valuable and powerful they discovered these e-assets, and the difficulties they face in getting to them. Plan/system/approach: An advantageous examining procedure was utilized to choose an example of 12 law scholastics from the number of inhabitants in 17. The review utilized both subjective and quantitative examination strategies utilizing polls and a semi-organized meeting guide. Discoveries: Discoveries uncovered that most of the law scholastics knew about the e-assets bought in by UNAM's library, albeit some didn't know about the recently bought in global law data sets. The discoveries further uncovered that the scholastics utilized e-assets for examination, distributions and showing purposes, yet sporadic preparing, data transmission issues and restricted looking through abilities thwarted their utilization of e-assets. Pragmatic ramifications: Discoveries could be utilized to advise future assortment advancement choices, realignment of data education preparing and advancement and promoting of library administrations. Innovation/esteem: This review has made a critical commitment in the understanding the utilization of electronic legitimate assets by law scholastics at UNAM. The discoveries and proposals could likewise help comparable scholarly establishments in agricultural nations like Namibia.

Masarek, Adam M.(2019) This article inspects case information conglomeration benefits that assist law with referring to curators examine a lot of data both all the more productively and all the more successfully. Exploration administrators are, thusly, ready to furnish lawyers with more significant experiences that assist them with anticipating prosecution results valuable for simple access. The education abilities expected to recover precise and current data from electronic assets is as yet a question of discussion in some scholastic libraries.

Sharma, Sanjeev and Kumar, Ravinder (2019) Information explosions and improvement of various sources and media of data have made data looking for conduct concentrates more intricate. The current review focuses on an appraisal of the data looking for conduct of scholastic legal advisors of colleges of Haryana. The extent of the review was bound to the understudies and workforce of the law of the four colleges of Haryana. The discoveries of the review depended on the information gathered

Ehioghae, Maria, Ukangwa, Chinemerem C. and Eniola, Abimbola (2017) The review analyzed the ICT education abilities of students in chose scholastic libraries in the utilization of electronic assets. All over world, including agricultural nations, there is a change in inclinations in scholastic libraries towards e-assets, which are observed to be more affordable and more accurate.

Bhardwaj, Raj Kumar (2017) The purpose of this review plans to recognize sex contrasts and likenesses in the consciousness of lawful data assets and issues looked by lawful experts. Further, the review recognizes the distinctions based on sex, in regards to the prerequisites in fostering a web-based legitimate data framework (OLIS) for the Indian climate.

Toteng, Bosha; Hoskins, Ruth; Bell, Fiona (2013) This paper depends on an investigation of Experts exposition did at the College of KwaZulu Natal which explored the utilization of electronic data sets by undergrad law understudies at the College of Botswana Library. The review planned to build up whether law understudies utilized the electronic data sets, which information bases they utilized and the recurrence of such use, to recognize issues understudies experienced when utilizing the data sets and how the understudies became mindful of the data sets

Objective of the Study

1. To find out the library services that promote e-learning.
2. To find out the utilization of e-resources services to the patrons.
3. To assess the benefits of the users after availing e-journal services.
4. To find out coordination between library and

teaching professionals regarding e-learning.

5. To find out role of GU SOL staff in e-learning.

6. To find out future prospects and planning.

Pedagogy use in School of Law, Galgotias University and their Research Centers

1. Constitutional Law and Governance with Justice - Centre: The center registers the doctoral degree. and post graduate students who, as ordinary members, specialize in constitutional law and will facilitate their research on related issues.

The Center's research will highlight the challenges posed by policymakers, management, constitutional legislators and society, and the production will be primarily academic and research publications.

a. To introduce a research culture on issues affecting constitutional law and governance.

b. A constant focus on justice in the pursuit of governance.

c. Conduct interdisciplinary research in the field of constitutional law and administration.

d. Create a resource pool to provide expertise in this area.

2. Centre for Criminal Justice Studies: The Center's research will focus on the challenges faced by policymakers, criminal justice professionals and society, and production will be carried out primarily in the form of scholarly and scholarly publications

a. ntroduce a culture of reaching out to issues related to criminal law and criminal justice.

b. Conducting interdisciplinary research in the field of criminal law. vs. Create a human resource group to provide expertise in this field

3. Centre for Corporate and Business : Law (CCBL) is a SOL initiative to shape and coordinate research in the business sector nationally and globally. The Center aims to give the necessary impetus by instilling in the students a questioning perspective and seeking answers on contemporary issues prevailing in the area / sector.

a. Organize seminars/conferences/training program/symposium/round table to disseminate new ideas in the field of company law and related laws. vs. Establish and promote links with organizations and develop a group of researchers to investigate the issues from an interdisciplinary perspective and promote greater participation in corporate law research projects. Establish contacts with the pillars of the legal profession involved in research on corporate law and securities reg-

ulation. me. Conduct and promote research on this discipline and attract interested students

4. The Centre for Intellectual Property Right Studies: CIPRS is a SOL initiative aimed at enhancing knowledge and understanding of the purpose, content and scope of intellectual property rights and raising awareness about intellectual property rights in order to equip students and other professionals with the latest developments in the field of intellectual property rights. The CIPRS of the Universidad Galgotias Law School focuses extensively on legal and regulatory issues related to intellectual property rights. It conducts research and training activities and also includes advice on intellectual property rights laws and policies.

To act as an interdisciplinary center for legal research on IPR innovation.

Promote research and development by serving as a center for workshops, debates, conferences and discussions.

Publish journals for research articles written by students, academics, and professionals.

Collaborate with other organizations/institutions/ universities to hold debates, workshops, conferences and discussions.

5. Centre for Clinical Legal Initiatives (CCLI): The Center will focus on teaching the practical aspects of clinical courses to students, engaging them in the experience and challenges that ordinary people face in accessing justice, providing remedies to the needy and needy.

Provide legal assistance by providing assistance in the resolution of disputes, assistance in court, communicating with the competent authorities for the repair of grievances, etc. and monitoring of follow-up actions in cases where legal assistance has been provided.

a. Organize training courses and mock court competitions vs. Conduct interviews with clients and advise through mediation and negotiation. Organize training courses in legal drafting and transfer of ownership.

6. Centre of Post-Graduate Legal Studies : Galgotias University, in line with its higher education expansion program and its vision of imparting excellence in legal education, has established the Center for Graduate Legal Studies (CPGLS) at the Faculty of Law for the purpose of a program of LL.M. studies Complying with the requirements of the UGC guidelines.

Promote advanced research in various areas of

legal study and resolve critical legal issues

To provide distinctive education and counseling in specialized branches of law at the graduate level.

Provide a pleasant and stimulating environment for the advancement and proliferation of legal knowledge in specialized areas.

Instill a strong aptitude for research in future law professors and lawyers.

Promote excellence and innovation in legal education and research.

7. Centre for Environmental studies: Galgotias University is a leading educational institution offering multidisciplinary teaching and research opportunities. The Faculty of Law of the Galgotias University aspires to become a recognized center for research and teaching of law in the country. The goal of the law school is to provide students with an excellent education and to contribute to the advancement of knowledge of law. It is with this vision that the School of Law offers undergraduate and graduate programs in law.

Provide a pleasant and stimulating environment for the advancement and proliferation of legal knowledge in specialized areas

Research Methodology

The procedural part is vital for an exam. The current research also applies certain methods to collect and decipher information for research. In fact, this research is done using essential and optional information. This segment describes the strategy applied for the essential information assortment and the sources used for the ancillary information. It also incorporates the size of the tests, the strategy used for information sets and the devices used to find the information. Throughout the article, attached approaches have been attached.

Data Analysis

Library is a social instrument by which information is moved from record to individual, it invigorate thought level and the character of that person changes. School of Law, Galgotias University Library is completely ready to satisfy the destinations of clients. The achievement and ineffective of this foundation library exercises and its administrations can be simply by extreme client networks which are straightforwardly worried about it. Its administrations, working resources and different endeavors can be assessed based on client fulfillment level. For this reason 1108 clients were chosen from the Institutes. An all around planned

poll was shipped off each and reaction was gathered from that point. furthermore, get back 1023. The separately reaction pace of the filled polls (92.33%). The reactions of survey are examined and arranged in various parts of the current examination.

Table 1.1: Type of users.

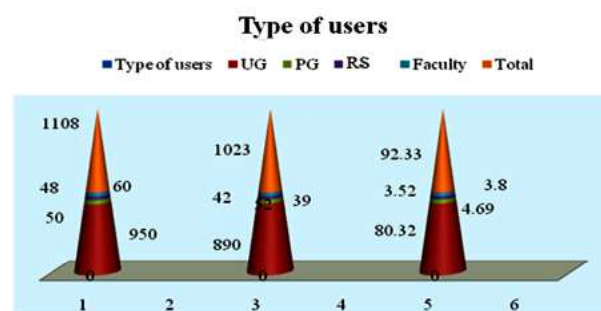| Type of users	Size of the sample	Total questionnaire received back	% of total received questionnaire
UG	950	890	80.32
PG	60	52	4.69
Research Scholar	50	39	3.52
Faculty	48	42	3.8
Total	**1108**	**1023**	**92.33**

Fig. 1.1: Shows that total sample size of the study 1108 users.

shows that total sample size of the study 1108 users, among these users, questionnaire were distributes including 950 questionnaire were distribute to Under Graduates, 60 questionnaire were distribute to Post graduates, 50 questionnaire were distribute to research scholar and 48 questionnaire were distribute to faculty members and get back 890 (80.32%) questionnaire were from UG, 52(04.69%) questionnaire were from PG, 39 (3.52%) questionnaire from research scholar and 42 (3.8 %) questionnaire from Faculty Members.

Table 1.2: Satisfaction level by Library Resources.

Tools	No of User	
	No.	Percentages
Books	45	4.4
Journals	73	7.1
Back Volumes Journals	34	3.3
References Sources	9	0.9
News Archives	16	1.6
Magazines	26	2.8
Thesis & Dissertation	9	0.7
Reports	3	0.5

E- Journals	229	22.2
E- Books	87	8.5
CD- ROMs	26	2.4
Online Reference Sources	187	18.29
Online Magazines	28	2.74
Consortia based Information Resources	251	24.57
Total	**1023**	**100**

Table no 1.2 indicates users satisfaction level of the users about Library Resources majority of the respondents 251 (24.57%) were given satisfactory level to the Consortia based Information Resources followed by 229 (22.2 %) were given satisfactory level E-Journals;187(18.29%) were given satisfactory level Online Reference Sources ; 87 (8.5%) were given satisfactory level print Books; 73 (7.1%) were given satisfactory level to Print Journals;45 (4.1%) were given satisfactory level to Books and so on …..
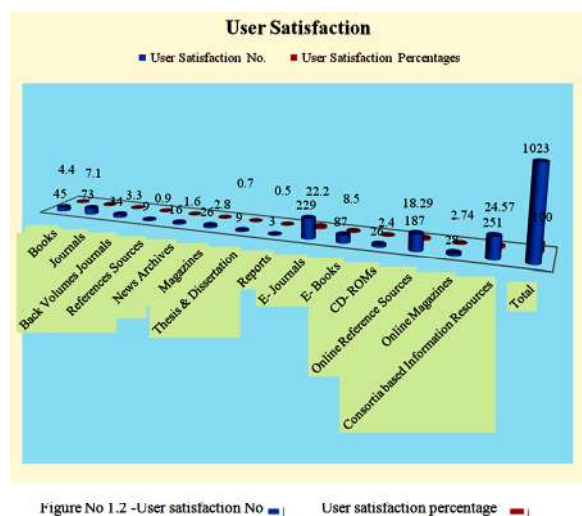

Fig. 1.2: User Satisfaction.

Awareness of Electronic Resources

The present patrons see their data needs fulfilled through various legal electronic resources are the most ideal approach to get the most recent and forward-thinking data, essential abilities are an essential for successful utilization of bought in legitimate databases, so respondents were inquired as to whether they knew about bought in lawful database (e-sources). Respondents were observed to be exceptionally acquainted with the wellsprings of lawful data accessible in GUSOL, library, absolute no of 1103 survey were disseminated and 1023 got 97.% respondents, shown that they knew about these e-resources.

Table 1.3: Frequency and purpose of use.

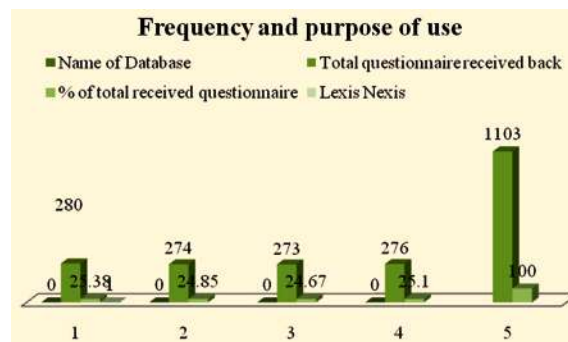| Name of Database	Total questionnaire received back	% of total received questionnaire
Lexis Nexis	280	25.38
Hein Online	274	24.85
Westlaw	273	24.67
Manupatra	276	25.1
	1103	100

Fig. 1.3: Frequency and purpose of use.

Here, an effort has been made to uncover the recurring use of legitimate subscribed data the advantages. This is an important and essential point of view that is identified with the examination of the feasibility of legal subscribed data. Four data sets were provided in the survey to encourage the use of legitimate subscribed data. It can be seen that all respondents often use subscribed legal data resources, Lexis Nexis has the highest score with 25.38% followed by 25.1% using Manupatra, 24.85% using Hein Online and 24.67% uses Westlaw. However, these databases have a delete request, but the contrast between each of them is peripheral, so we can say that all data sets are used properly by all clients.

The purpose behind the use of legal subscribed e-databases varies from customer to customer, although the conceptions are numerous, the main objectives cited in the survey were: identification of jurisprudence, speech dependent conversation, group conversation and discussion about an explicit question, etc. they were looking for jurisprudence. This was followed by whoever used it for activities and tasks. Only a few respondents indicated that the reasons for using these resources are R & D exercises, and some customers use them to educate and talk about the reason.

Finding and Suggestions

To fully understand the capabilities achieved in

the use of electronic resources, GUSOL library organized the orientation programs for the use of e-resources easily and effectively. It was found that the largest respondents learned through orientation and awareness program organized by the library, followed by some patrons learned with the help of colleagues or partners, some of the users said they learned on own, while some of the patrons are said that they learned with the help of an online educational exercise. In all cases, none of the respondents reported learning with the help of external sources.

Conclusion

It is of most extreme significance that GUSOL, patrons are using the e-resources, and lawful experts cooperate to make these resources more clear, better planned and front line by worldwide norms to energize productive and convincing use. The present users see their data needs fulfilled through various alternatives electronic resources are the most ideal approach to get the most recent and exceptional data, important abilities are an essential for compelling utilization of bought in legitimate data resources.

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[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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