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## Text Citations and Bibliographic Analysis of Doctoral Theses in Library and Information Science Awarded by the University of Burdwan from 2010 to 2019.

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**Text Citations and Bibliographic Analysis of Doctoral Theses in Library and Information Science Awarded by the University of Burdwan from 2010 to 2019.**

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**ABSTRACT**

The present study deals with 5192 citations appended to 20 doctoral theses which are awarded by the Department of Library and Information Science in The University of Burdwan, West Bengal, during 2010 to 2019. In this period, the university has awarded 22 doctoral theses in Library and Information Science. Out of 22 theses, 20 theses are selected for this study. This study aims to analyze several parameters like format of literature cited, authorship pattern of citations, chronological distribution of citations and also a ratio of Indian journal citations and foreign journal citations. Two different rank lists of journals in library and Information Science are also included in order to find out the most referred journals in Library and Information Science. . The present study reveals that out of the total 1716 citations in journal, 774 citations (45 %) are contributed by single author. It reveals that journals are the most preferable sources of information used by the researchers in Library and Information Science. The degree of collaboration of authors in the cited journals is 0.548. The average citation per thesis is 259.6 and the ratio of the cited Indian and foreign journal citation is 67:219.

**Keywords:** Authorship Patterns; Bibliographic Form; Citation Analysis; Citation Studies; Core Journals; Journals Ranking.

**Introduction:** Researchers have been using different books, journals, theses, reports and web documents to establish their study. In information rich Society, it is crucial to remember that all

information are not equal. So, ranking of information sources is essential as it plays a pivotal role to all nations and community for the betterment of the present status. Ranking refers to the position in a scale of responsibility, quality or social status. The present study deals with 5192 citations appended to 20 doctoral theses which are awarded by the Department of Library and Information Science in The University of Burdwan, West Bengal, during 2010 to 2019. In this period, the university has awarded 22 doctoral theses in Library and Information Science. Out of 22 theses, 20 theses are selected for this study due to non availability of these theses from the portal of the University of Burdwan. The purpose of this study is to analysis the citation patterns reflected in the doctoral theses submitted to the Department of Library and Information Science, University of Burdwan during the period 2010 to 2019.

**1. Review of Literature:** Various studies are carried out on citation analysis before this study. Here, some studies have been reviewed on the present topics. K.P. Singh and Bebi Dabas (2013) analyzed PhD theses in various parameters like authorship pattern, forms of literature, country-wise scattering of citations, distribution of Indian and foreign citations. This study exposed that the highest number of citations was single authored (83.94 %), and 67.23 % citations were from books and only 22.20 % citations were from journals [1]. Sakia and Gohain (2014) carried out a bibliometric study of citation analysis of Ph.D theses submitted to the period of 2008 – 2012. This study analyzed authorship patterns, bibliographic format, and included a rank list of core journals in Chemical Science. [2]. K. Kusuma Kumari and Dr. M. Doraswamy (2014) analyzed a citation of PhD theses to bring significant findings on bibliographic forms, authorship pattern, chronological citations of books and journals and ranks list of cited journals [3]. Geetha, M., Pushpa, K., Mounesh G. and Nanditha S.P (2016) analyzed 4490 citations to ascertain the authorship patterns along with calculation of collaboration coefficient, type of literature, ranking

of journals books, time span, and geography. This study reveals that journals are most preferred source of information used by researchers in the field of computer science [4]. Dr. Asha Rani and Dr. Sanjeev Sharma (2017) analyzed 5758 citations, appended in the 38 Ph.D. theses of Management to investigate authorship pattern of the citations, form of cited literature. The study found out that journals were the most preferred sources to the scholars in the field of Management [5]. Mithu Anjali Gayan and Sanjay Kumar Singh (2018) analyzed the authorship pattern, year wise citations, country wise citations and publisher wise citations. Degree of collaboration in the discipline was found out by the researcher. An average citation per thesis in Mathematics is also revealed in this study [6]. Amritpal Kaur and Gurjeet Kaur Rattan. (2018) analyzed 9053 citations appended to 92 doctoral theses to investigate the cited authorship pattern, bibliographic format, citations of electronic or print format and chronological distribution of citations etc. [7]. Gayan, Mithu Anjali and Singh, Sanjay Kumar (2019) also analyzed the citation in Physics to understand the different citations characteristics in this discipline. Total 5640 citations were analyzed from during 2007 to 2016. This study revealed that the half life of Physics journals was 15.9 years [8]. This review of literature on the doctoral theses revealed that there were no quantitative study on library and Information Science. So, this study is carried out.

**2. Objectives:** The objective of present study addresses the following aspects:

- a. To trace out the session wise distribution of the theses along with their citations,
- b. To analyze the bibliographic form wise distribution of citation,
- c. To prepare rank lists for Indian and foreign journals based on their frequency of use,
- d. To examine the authorship pattern in cited journals,
- e. To find out the degree of collaboration of authorship,

f. To know the ratio of cited Indian journal citations and foreign journals citations.

**3. Hypotheses:** Hypotheses of this present study are in the following:

- Journals and web resources are the major source of information in library and information science
- Researchers prefer foreign journals as compared to Indian journals.

**4. Scope of this study:** Out of 22 theses, total 20 theses are analyzed here. This study is limited on the discovering and scanning of bibliographic references of Doctoral theses in library and information science awarded by the University of Burdwan. Time period of this study is confined only in ten years.

**5. Methodology:** For this study data have been collected from Shodhganga by downloading PDF file chapter wise from the portal of the University of Burdwan's collections. There are 22 Doctoral theses awarded by the Department of Library and Information Science in the University of Burdwan from 2010 to 2019. Out of 22 theses, 20 theses are selected for this study due to not uploading these two theses in Shodhganga or in the web portal of the University of Burdwan. No these are awarded by the University of Burdwan in 2011. Citations are scattered at the end of the each chapters and also are appended separately at end of the theses in the form of bibliography. Each citation of each thesis is analyzed manually to find out the format and each citation has been counted as one citation. All cited references are categorized according to the format like books, journals, web resource, reports, conference proceedings, thesis or dissertation and reference book etc. Quantitative research method is adopted here for citation analysis. Authorships pattern are classified into single, two, three and multi authors. Cited journals are classified into Indian and foreign journals which are identified by the publication origins. From

these 20 theses, total 5192 citations are found. The collected raw data have been classified and stored in MS-Excel format for tabulating and presenting. The results are shown in graphical and tabular format. Finally, two different rank lists of journals in Library and Information Science are also included here. The degree of collaboration of authorships is calculated using K. Subramanyam's formula (Subramanyam, 1983) [9].

## 6. Data Analysis and discussions:

Table. 1 Year wise distribution of theses awarded by the University of Burdwan in Library and Information Science

Awarded Year	Number of awarded Thesis/Theses	Percentage	Cumulative Citations	Cumulative Percentage
2010	2	10%	2	10.00
2012	5	25%	7	35.00
2013	1	5%	8	40.00
2014	3	15%	11	55.00
2015	2	10%	13	65.00
2016	2	10%	15	75.00
2017	2	10%	17	85.00
2018	1	5%	18	90.00

2019	2	10%	20	100.00
Total	20	100%		

\*No theses are awarded in 2011 in library and Information Science by the University of Burdwan.

Table 1 shows the year wise distribution of theses awarded by the Department of Library and Information Science in the University of Burdwan. Total 22 theses are awarded during 2010 to 2019. But here 20 theses are analyzed. The year 2012 is recorded the highest number of awarded theses followed by 2014 and 2015 respectively.

Table 2 Year wise distribution citations

Awarded Year	Number of awarded Thesis/Theses	Citations	Average Citations	Cumulative Citations	Cumulative Percentage
2010	2	397	198.5	397	7.65
2012	5	975	195.0	1372	26.43
2013	1	266	266.0	1638	31.55
2014	3	1003	334.3	2641	50.87

2015	2	461	230.5	3102	59.75
2016	2	440	220.0	3542	68.22
2017	2	639	319.5	4181	80.53
2018	1	413	413.0	4594	88.48
2019	2	598	299.0	5192	100.00
Total	20	5192			

\*No theses are awarded in 2011 in library and Information Science by the University of Burdwan.

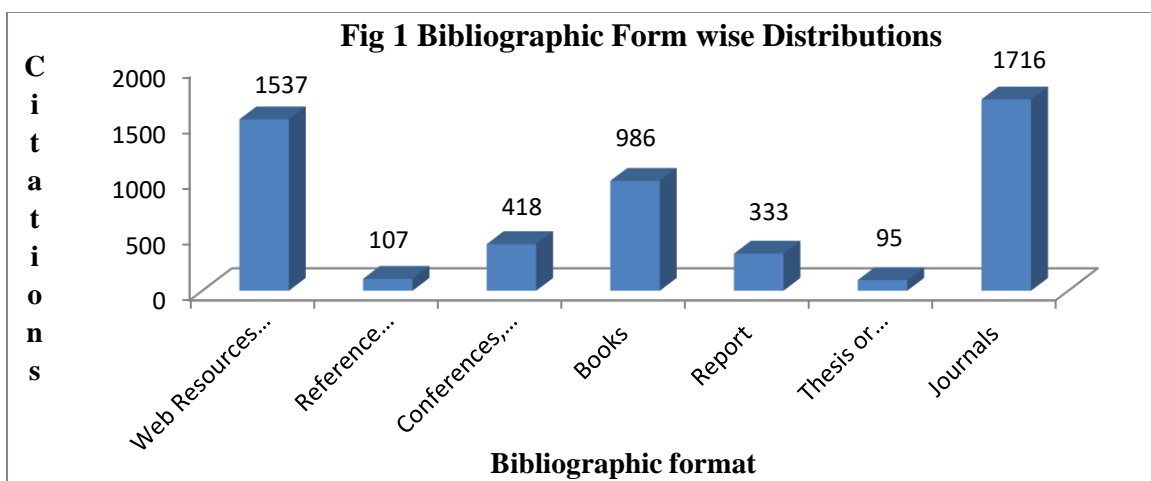
Table 2 shows the distribution of year wise citations of theses. Total 5192 citations have been cited by the researchers in 20 theses during 2010 – 2019. The average citation per thesis is 259.6.

Table 3 Bibliographic form wise distribution of citations

Bibliographic Form wise Distributions	Citations	Percentage (%)	Cumulative No. of Citation	Cumulative Percentage	Rank
Web Resources or URL	1537	29.60	1537	29.60	2
Reference Sources	107	2.06	1644	31.66	6
Conferences, Seminar and Proceedings	418	8.05	2062	39.71	4
Books	986	18.99	3048	58.71	3



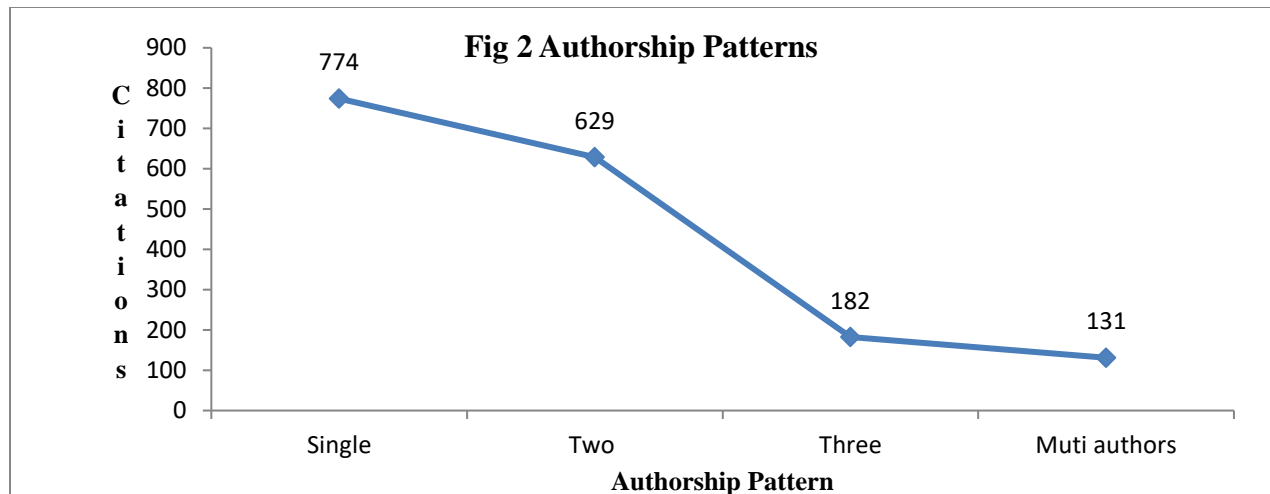
Report	333	6.41	3381	65.12	5
Thesis or Dissertations	95	1.83	3476	66.95	7
Journals	1716	33.05	5192	100.00	1
	<b>5192</b>	100.00			



From Table 3 and Fig. 1, it is observed that among various source of information are used by the researchers. Among them, journals contribute the highest number of citations. Journal citations are 1716 citations (33.05 %) out of total 5192 cited references. The second cited source of information is from website or URL (Uniform Resource Locator), i.e., 1537 citations (29.60 %). The third source of information is from Books 986 citations (18.99 %) followed by Conference and Seminar 418 citations (8.05 %). So, it can be concluded that journals are used widely compared to all other information sources. Most of the journals are collected from web resources or from URL.

Table 4 Authorship patterns in journals in the cited theses

Auhorship Patterns in Journals	Citations	Percentage	Cumulative No. of Citation	Cumulative Percentage
Single	774	45%	774	45.10
Two	629	37%	1,403	81.76
Three	182	11%	1,585	92.37
Muti authors	131	8%	1,716	100.00
	<b>1716</b>	100%		



From Table 4 and Fig. 2, it is clear that the highest numbers of citations in journals are contributed by single authors, i.e., 774 citations (45%) and 629 citations (37%) citations are from two authors. The remaining citations are contributed by three authors 182 citations (11 %) and multiple authors 131 citations (8%).

Table 4.1 Degree of Collaboration of authors in cited journals

Types of authors	Total No. of citation	Percentage	Cumulative Citation	Cumulative Percentage	Rank
Single	774	45%	774	45.14	2
Multi authors(Two, Three & multi authors)	942	55%	1716	100	1
Total	1716				

**Collaboration of authorships:** To determine the degree of collaboration in quantitative term, K Subramanyam's formula is mathematically implemented here. The formula is:  $C = N_m / (N_m + N_s)$ , Where C is the degree of collaboration in a discipline.  $N_m$  is the number of multi authors research papers in the discipline during one year and  $N_s$  is the Single author research papers in the discipline published during the same year.

In the present study,

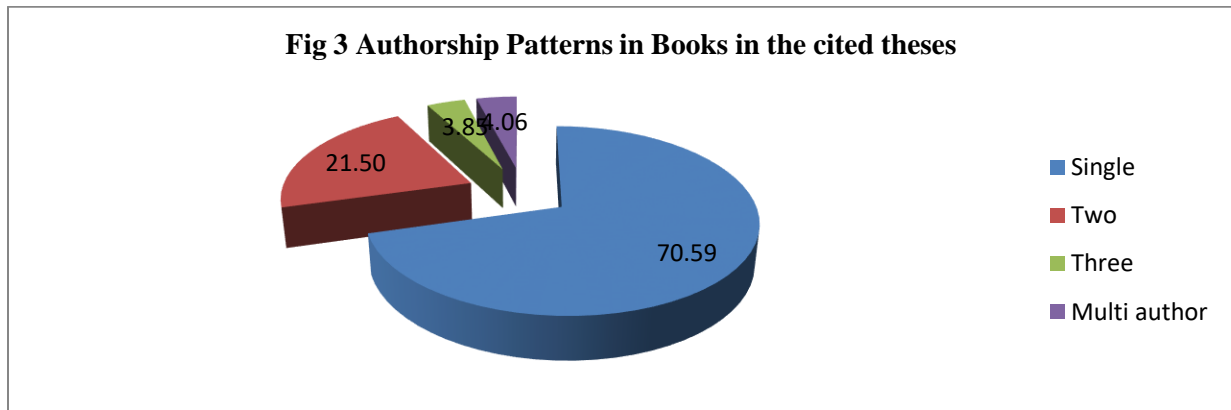
$N_m$  - is the number of multi authors' research papers in the discipline during the period 2010 to 2019, i.e., 942 citations and  $N_s$  - is the Single author research papers in the discipline published during the same period, i.e., 774 citations.

$$C = 942 / (942 + 774) = 0.548$$

This indicates that degree of collaboration of cited journals is 0.548 which indicates the degree of prevalence of multi authorship publications in Library and Information Science.

Table 5 Authorship patterns in books in the cited theses

Auhorship in Books	Citations	Percentage	Cumulative No. of Citation	Cumulative Percentage
Single	696	70.59	696	40.56
Two	212	21.50	908	52.91
Three	38	3.85	946	55.13
Multi author	40	4.06	986	57.46
<b>Total</b>	<b>986</b>			



From Table 5 and Fig 3, it is clear that the highest numbers of citations in books are contributed by single authors, i.e., 696 citations (70.59 %) and 212 citations (21.50 %) citations are from two authors. The remaining citations are contributed by three authors 38 citations (3.85 %) and multiple authors 40 citations (4.06%). The trend of Single authorship in books in Library and Information Science is revealed here.

Table 6 Geographical Distribution of Journal Citations

Geographical distributions	Citations	Percentage	Cumulative Citations	Cumulative Percentage	Rank
National	402	23%	402	23.43	2
International	1314	77%	1716	100.000	1
<b>Total</b>	<b>1716</b>	<b>100%</b>			

Table No. 6 shows the geographical distribution of journal citations. Journals are classified into two groups based on their publication origins. The study finds that 1314 citations (77 %) out of 1716 citations are from foreign journals and 402 citations (23 %) are from Indian journals. So, it can be concluded that foreign journals are more cited as compare to Indian journals. The ratio of the cited Indian and foreign journal citation is 67:219.

Table 7 Chronological Distribution of Journal Citations

Age of Citations in Journal	Citations	Percentage	Cumulative Citations	Cumulative Percentage	Rank
Before 1949	10	1%	10	0.58	7
1950 - 1959	7	0%	17	0.99	8
1960 - 1969	37	2%	54	3.15	6
1970 -1979	61	4%	115	6.70	5
1980 - 1989	143	8%	258	15.03	4
1990 - 1999	431	25%	689	40.15	2
2000 -2009	812	47%	1501	87.47	1
2010 - 2019	215	13%	1716	100.00	3

	<b>1716</b>	100%	
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Table No. 7 shows that the year from 2000 to 2009 is the most productive year. In this time total 812 (47 %) citations from journals are received from 2000 to 2009. Second highest citations are 431 citations (25%) from the year 1990 to 1999. This indicates that the researchers are inclined towards recent published literatures.

Table 8 Ranking list of core journals in Library and Information Science in India

Name of the Journals (Published in Indian)	Citations	Percentage	Cumulative Citations	Cumulative Percentage	Rank
Annals of Library and Information Studies	69	17.16	69	17.16	3
DESIDOC Bulletin of Information Technology	108	26.87	177	44.03	1
Granthagar	28	6.97	205	51.00	5
Granthana: Indian Journal of Information Studies	20	4.98	225	55.97	8
IASLIC Bulletin	74	18.41	299	74.38	2
ILA Bulletin (Indian Library Association Bulletin)	36	8.96	335	83.33	4
Library Herald	27	6.72	362	90.05	6
SRELS Journal of Information Management	16	3.98	378	94.03	9

Others	24	5.97	402	100.00	7
Total	<b>402</b>				

The rank list of Indian cited journals are drawn on 402 citations. These journals are published in India. Among various journals, DESIDOC Journal of Information Technology received the highest citations, i.e., 108 (26.87%). IASLIC Bulletin is received 74 citations (18.41%) out of total 402 citations. The next most preferred journal is Annals of Library and Information Studies 69 citations (17.16%). Other disciplines' journals are also cited here, i.e., 24 citations (3.98%) out of 402 citations in Indian journals. It indicates that the researchers in Library and Information Science consult with other disciplines.

Table 9 Ranking list of core journals in Library and Information Science in foreign publications

Name of the Journals (Foreign)	Citations	Percentage	Cumulative Citations	Cumulative Percentage	Rank
American Society for informationa Science	22	1.67	22	1.67	16
American Society for informationa Technology	35	2.66	57	4.34	11
College and Research Libraries	40	3.04	97	7.38	8
D-Lib Magazine	86	6.54	183	13.93	3
Journal of Librarianship and Information Science (JLIS)	56	4.26	239	18.19	5
IFLA Journal	17	1.29	256	19.48	19

Information Processing and Management	23	1.75	279	21.23	15
International Library Review	42	3.20	321	24.43	7
Journal of Academic Librarianship	14	1.07	335	25.49	22
Journal of Documentation	29	2.21	364	27.70	13
Journal of Information Science	30	2.28	394	29.98	12
Journal of Informetrics	25	1.90	419	31.89	14
Journal of Library Administration	15	1.14	434	33.03	20
Journal of Scientometrics and information Management	51	3.88	485	36.91	6
Journal of the American Society for Information Science and Technology	12	0.91	497	37.82	22
Journal of the American Society for Information Science	15	1.14	512	38.96	21
Library and Information Science Research	14	1.07	526	40.03	21
Library Hi Tech	90	6.85	616	46.88	2
Library Philosophy and Practice	21	1.60	637	48.48	17
Library Quarterly	38	2.89	675	51.37	10
Libri	39	2.97	714	54.34	9
Malayasian Journal of Library and Information Science	7	0.53	721	54.87	23
Online Information Review	21	1.60	742	56.47	18
The Electronic Library	78	5.94	820	62.40	4
Others	494	37.60	1314	100.00	1



Total	1314
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Table 9 shows the rank list of outside Indian cited journals are drawn on 1314 citations. These journals are published from outside of India. Among various journals, others journals published by different discipline receive the highest citations, i.e., 494 (37.64%) out of total 1315 citations. Library Hi Tech is received 90 citations (6.85%) out of total 1314 citations. The next most preferred journal is D. Lib Magazine 86 citations (6.54%). The remaining cited journals are Electronic Library (5.94%), Journal of Librarianship and Information Science (JLIS) 56 citations (4.26%) etc. It indicates that the researchers in Library and Information Science consult with other disciplines.

**7. Findings:** In the present study 5192 citations are analyzed from 20 theses in Library and Information Science. On the basis of the study, the following conclusions are drawn:

- Highest numbers of citations 1716 (33 %) are recorded from Journals followed by web resources 1537 (30 %) and books 986 (19 %) etc. The first hypothesis, Journals and web resources are the major source of information in library and information science is put to test and it reveals to be true (Table 3 and Fig 1).
- The analysis of citations indicates that most cited journals are from outside of India, that is 1314 (77 %) and 402 (23 %) are from Indian journals. The ratio of the cited Indian and foreign journal citation is 67:219. The second hypothesis, Researchers prefer foreign journals as compared to Indian journals, is put to test and it reveals to be true (Table 6).
- From the rank list of Journals, it is observed that researchers cite 24 citations (5.97 %) out of total 402 citations from other discipline in Indian journals and 494 (37.60 %) citations

out of total 1314 citations from other discipline in foreign journals. So, it is clear that researchers in Library and Information Science consult with other disciplines along with library and Information Science. The third hypothesis, library Science is an interdisciplinary subject, is put to test and it reveals to be true (Table 8 and Table 9).

- The analysis of authorship pattern in Library and Information Science reveals that 774 citations (45 %) are contributed by single authors and 629 (37 %) citations are from two authors. The degree of collaboration of cited journals is 0.548 which indicates the degree of prevalence of multi authors' publications in Library and Information Science.
- In the rank list of Indian journals in Library and Information Science, DESIDOC Bulletin of Information Technology occupies the first rank accounting for 108 (26.87%) of total journal citations followed by IASLIC Bulletin 74 (18.41%).
- In the rank list of outside of Indian Library and Information Science journals, Library Hi Tech occupies the first rank accounting for 90 (6.85%) of total journal citations followed by D-Lib Magazine 86 (6.54%).

**8. Conclusion:** During the study it is found that citations are not in one uniform standard format. It is also observed that somewhere year is missing; somewhere publisher's name is missing and so on. Instead of these, this kind of studies will be helpful to library and information science researchers in understanding the characteristics of the field as well as librarians in recognizing researchers' information needs and can serve as feedback to the librarians in the selection, acquisition and policy making in terms of collection development. They may also help libraries in their budget planning to judiciously use their budgets and funds to make far reaching decisions on library material collection.

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