

BIBLIOGRAPHY IN TEACHER EDUCATION PHD THESES: AN OBSOLESCENCE STUDY

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Abstract

It's obvious that some materials in libraries or in particular stream of knowledge become outdated as time advances. In library and information science this phenomenon is known as 'obsolescence'. Present study was done to comprehend the obsolescence of teacher education literature. Findings will be helpful as decisions making tool for teacher education libraries in their various policies of collection management.

Keywords: *Teacher Education, PhD Theses, Library Withdrawal Policy, Literature Obsolescence, Bibliometric Analysis, Literature Half-Life*



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Introduction

The word obsolescence means decline over time in the validity or utility. Obsolescence is a fundamental characteristic all entities including scholarly literature. Obsolescence studies are one of the leading areas of bibliometrics and citation analysis. In Burrell's (1985) words, obsolescence means "acceptance of any given body of library material suffers a general decline in usage with the passage of time."

Reasons for Obsolescence of Literature:

Though the information is valid but Literature Obsolescence occur due to following conditions

- same information is incorporated in later work;
- superseded by later work
- is in a field of diminishing interest
- is no longer in force or usable.

According to Zare & Mohammadi (2014). Literature Obsolescence studies usually measure the decline in the use of a representative set of literature over time. They are helpful for pioneers in a scientific discipline to know how far they must go back to obtain material in their field of interest.

The librarians are facing with the space and fund problems. Such studies help the librarian to decide the prime collection of the library, to measure the utility of back volumes

of journals and old editions, decide stacking life and location of materials, maintenance, binding, stacking policy and withdrawal policy or digitization policy of different sources of information. In short, obsolescence study can act as a decision support tool for the retention of the most frequently-used literature, and for withdrawing of unused or less-used literature.

Objectives:The objectives of the present study are to discover:

- Obsolescence and half-life of Teacher Education Literature cited in Theses.
- Obsolescence and half-life of Teacher Education Journals Cited in Theses
- Obsolescence and half-life of Teacher Education Books cited in Theses.

Hypothesis:Obsolescence rate of journals is higher education is than that of books.

Scope, Sample and Scheme used for study:

The present study attempts to discover the obsolescence rate of teacher education literature cited in the doctoral theses awarded from 1995 to 2014, at University of Mumbai. Paper surveyed all 23 the doctoral studies through one of its pioneering PhD Center named Bombay Teacher's Training College during aforesaid two decades. Actual No of cited references cited reference section of those theses were 1856. Of which number of complete cited references was 1765.

Number of authors, bibliographic format, year of publication, journal name, subject, country, language, and publisher's name were recorded for each reference entry. The data was analyzed using Microsoft Excel to fulfill the objectives

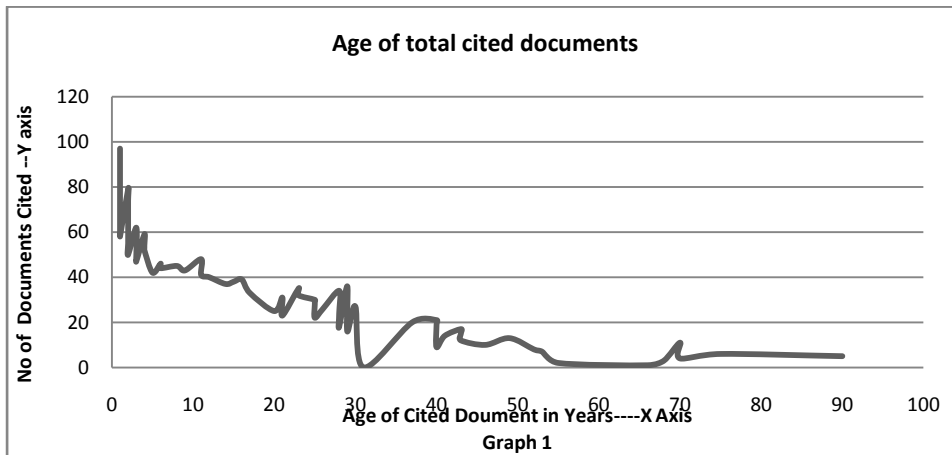
Review of Literature

Over the years many studies were conducted in various disciplines to find obsolescence rate of literature and journals in those subjects. In physics (Hooker 1935), speech literature (Brody 1953), physiology (Lowler 1963), sociology (Lin and Nelson 1969), English literature (Heinzkill 1980), and mathematics (Line 1972), chemistry (Brown 1980, Aruna 1999), biological sciences (Vimala 1997), and geology (Mahapatra and Bhagavan 2000) Obsolescence rate is studied using bibliometric and citation techniques.

To compare the speed of decay in any subject, "half-life" is used as a measure. Half-life refers to the time during which one half of the current active literature was published or used or cited.

The time by which one half of currently published/cited literature become obsolescent/ outdated is called half-life of that literature. Therefore to study obsolescence of cited literature, its half-life is calculated. Initially age of each cited reference is calculated for

all 1765 references. **Age of the cited document is the gap between year of citation and the year of publication of that document.**



Graph1 confirms that, after the average age 21 years, as the age increases, use of literature found to be decreased.

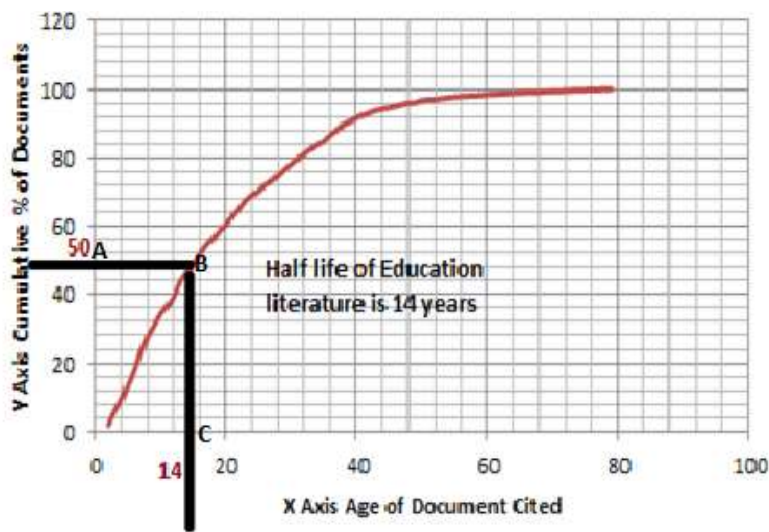
Table1: Obsolescence or half-life of teacher education literature used

Age of cited docs.	No of Docs	% of Cited documents	Cumulative% of Cited Docs
0	31	1.885645	1.885644769
1	66	4.014599	5.900243309
2	55	3.345499	9.245742092
3	68	4.136253	13.38199513
4	70	4.257908	17.63990268
5	90	5.474453	23.11435523
6	75	4.562044	27.67639903
7	53	3.223844	30.90024331
8	52	3.163017	34.06326034
9	40	2.43309	36.49635036
10	46	2.798054	39.29440389
11	70	4.257908	43.55231144
12	43	2.615572	46.16788321
13	49	2.980535	49.14841849
14	41	2.493917	51.64233577
15	43	2.615572	54.25790754
16	29	1.76399	56.02189781
17	43	2.615572	58.63746959
18	28	1.703163	60.3406326
19	40	2.43309	62.77372263
20	37	2.250608	65.0243309
21	40	2.43309	67.45742092
22	25	1.520681	68.97810219
23	21	1.277372	70.25547445
24	28	1.703163	71.95863747
25	20	1.216545	73.17518248
26	26	1.581509	74.756691
27	30	1.824818	76.58150852
28	25	1.520681	78.10218978

29	25	1.520681	79.62287105
30	25	1.520681	81.14355231
31	21	1.277372	82.42092457
32	23	1.399027	83.81995134
33	17	1.034063	84.8540146
34	28	1.703163	86.55717762
35	23	1.399027	87.95620438
36	29	1.76399	89.72019465
37	14	0.851582	90.57177616
38	15	0.912409	91.48418491
39	16	0.973236	92.45742092
40	12	0.729927	93.18734793
41	11	0.6691	93.85644769
42	5	0.304136	94.16058394
43	9	0.547445	94.7080292
44	6	0.364964	95.0729927
45	8	0.486618	95.55961071
46	6	0.364964	95.92457421
47	3	0.182482	96.10705596
48	11	0.6691	96.77615572
49	3	0.182482	96.95863747
50	2	0.121655	97.08029197
52	4	0.243309	97.32360097
53	4	0.243309	97.56690998
54	4	0.243309	97.81021898
55	2	0.121655	97.93187348
56	2	0.121655	98.05352798
57	2	0.121655	98.17518248
58	1	0.060827	98.23600973
59	4	0.243309	98.47931873
60	1	0.060827	98.54014599
62	3	0.182482	98.72262774
64	1	0.060827	98.78345499
65	2	0.121655	98.90510949
66	2	0.121655	99.02676399
68	1	0.060827	99.08759124
71	1	0.060827	99.14841849
73	1	0.060827	99.20924574
74	2	0.121655	99.33090024
75	1	0.060827	99.39172749
76	1	0.060827	99.45255474
77	1	0.060827	99.513382
79	2	0.121655	99.6350365
81	1	0.060827	99.69586375
85	1	0.060827	99.756691
86	1	0.060827	99.81751825
90	1	0.060827	99.8783455
94	1	0.060827	99.93917275
97	1	0.060827	100

A graph is plotted taking the age of citations (in years) on X-axis and cumulative percentage of citations on Y-axis to find out half-life of citations. A line parallel to the X-axis is drawn from a point (0,50) representing the half of the citations to meet the curve say "B". Then

perpendicular to X-axis (BC) is drawn from point B to meet the X-axis at C. "C" represents the half-life period of citations.



Graph2

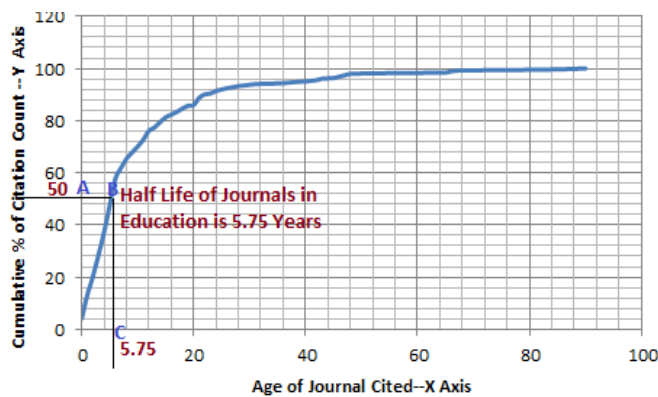
Findings:

1. Education and Democracy (1996) by Dewey J. published by Macmillan Free Press, New York is the oldest book referred (in 2013) among all cited references. Its citation age is 97 years.
 2. Average age of cited literature in Educational theses is 21 years.
 3. Maximum (5.5%) documents referred by teacher education researchers are 5 years old.
 4. Approximately 1/4 (380) citations are less than 5 years old.
 5. Graph2 as well as table 1 indicates that 51.64%|nearly 50% of the citations made were of age 0-14, so half-life of Teacher education literature considered here is 14 years. Within period of 14 years 50% of literature referred is becoming obsolete.
- Among more than 70 different bibliographic forms of information, the first two highly cited were Books and Journals. Book citations were 848 (48%) and Journal Citations were 385 (21%) respectively. Therefore half-life of books and journals in education is also investigated.

Table 2: Obsolescence or half-life of teacher education journals used

Age of journal citation(Yr)	Citation Count	% of Citations	Cumulative % of Citation Count
0	16	4.155844	4.155844156
1	35	9.090909	13.24675325
2	27	7.012987	20.25974026
3	32	8.311688	28.57142857
4	34	8.831169	37.4025974
5	39	10.12987	47.53246753
6	39	10.12987	57.66233766

7	16	4.155844	61.81818182
8	14	3.636364	65.45454545
9	9	2.337662	67.79220779
10	9	2.337662	70.12987013
11	10	2.597403	72.72727273
12	13	3.376623	76.1038961
13	5	1.298701	77.4025974
14	8	2.077922	79.48051948
15	7	1.818182	81.2987013
16	4	1.038961	82.33766234
17	4	1.038961	83.37662338
18	5	1.298701	84.67532468
19	4	1.038961	85.71428571
20	1	0.25974	85.97402597
21	11	2.857143	88.83116883
22	5	1.298701	90.12987013
23	1	0.25974	90.38961039
24	4	1.038961	91.42857143
25	2	0.519481	91.94805195
26	2	0.519481	92.46753247
28	3	0.779221	93.24675325
29	1	0.25974	93.50649351
30	1	0.25974	93.76623377
31	1	0.25974	94.02597403
35	1	0.25974	94.28571429
38	2	0.519481	94.80519481
40	1	0.25974	95.06493506
42	2	0.519481	95.58441558
43	2	0.519481	96.1038961
45	1	0.25974	96.36363636
46	2	0.519481	96.88311688
47	2	0.519481	97.4025974
48	2	0.519481	97.92207792
53	1	0.25974	98.18181818
65	1	0.25974	98.44155844
66	2	0.519481	98.96103896
68	1	0.25974	99.22077922
79	1	0.25974	99.48051948
86	1	0.25974	99.74025974
90	1	0.25974	100



Graph 3

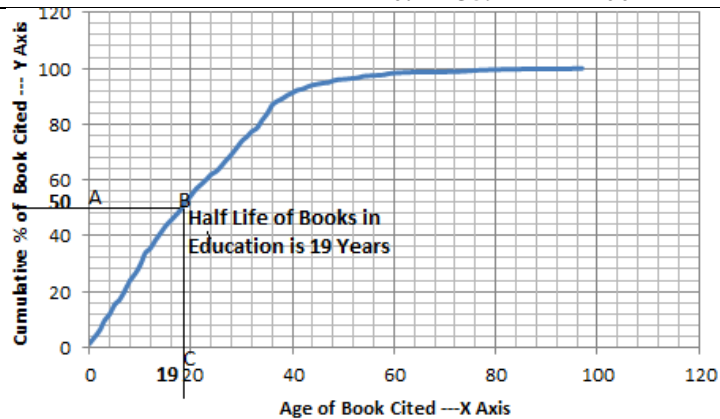
Findings:

1. American School Board Journal 1913 is the oldest journal cited with cited in 2003 Age 90 years.
2. Average age of Journals cited by teacher education researchers is 28.93 years.
3. Maximum number of journals (78 ie. 20.25%) referred are 5 to 6 years old.
4. More than ¼(110 ie. 28%) journal citations are 0-3 years old, Citation age of 80% Journal Citations is 14 years or less.
5. 5.50% Journal citations are less than 6 years old. Half Life period of Journals cited here is 5.75 years. (See Table 2 and Graph 3). Journals referred by education searchers became obsolete after 5.75 Years.

Table 3: Obsolescence or half-life of teacher education books cited

Age of Book Cited in years	No of Citations	% of Citations	of Cumulative Citations	% of
0	10	1.213592	1.213592233	
1	19	2.305825	3.519417476	
2	20	2.427184	5.946601942	
3	30	3.640777	9.587378641	
4	19	2.305825	11.89320388	
5	28	3.398058	15.29126214	
6	15	1.820388	17.11165049	
7	27	3.276699	20.38834951	
8	29	3.519417	23.90776699	
9	20	2.427184	26.33495146	
10	25	3.033981	29.36893204	
11	36	4.368932	33.73786408	
12	14	1.699029	35.4368932	
13	24	2.912621	38.34951456	
14	21	2.548544	40.89805825	
15	21	2.548544	43.44660194	
16	16	1.941748	45.38834951	
17	16	1.941748	47.33009709	
18	17	2.063107	49.39320388	
19	23	2.791262	52.18446602	
20	18	2.184466	54.36893204	
21	20	2.427184	56.7961165	
22	13	1.57767	58.37378641	
23	14	1.699029	60.07281553	
24	16	1.941748	62.01456311	
25	9	1.092233	63.10679612	
26	16	1.941748	65.04854369	
27	18	2.184466	67.23300971	
28	16	1.941748	69.17475728	
29	19	2.305825	71.48058252	
30	20	2.427184	73.90776699	
31	13	1.57767	75.48543689	
32	16	1.941748	77.42718447	

33	10	1.213592	78.6407767
34	23	2.791262	81.43203883
35	19	2.305825	83.73786408
36	26	3.15534	86.89320388
37	11	1.334951	88.22815534
38	8	0.970874	89.19902913
39	10	1.213592	90.41262136
40	7	0.849515	91.26213592
41	8	0.970874	92.23300971
42	3	0.364078	92.59708738
43	7	0.849515	93.44660194
44	5	0.606796	94.05339806
45	3	0.364078	94.41747573
46	3	0.364078	94.7815534
47	1	0.121359	94.90291262
48	6	0.728155	95.63106796
49	3	0.364078	95.99514563
50	1	0.121359	96.11650485
52	3	0.364078	96.48058252
53	2	0.242718	96.72330097
54	4	0.485437	97.20873786
56	2	0.242718	97.45145631
57	1	0.121359	97.57281553
58	1	0.121359	97.69417476
59	4	0.485437	98.17961165
62	3	0.364078	98.54368932
65	1	0.121359	98.66504854
71	1	0.121359	98.78640777
73	1	0.121359	98.90776699
74	1	0.121359	99.02912621
75	1	0.121359	99.15048544
76	1	0.121359	99.27184466
77	1	0.121359	99.39320388
79	1	0.121359	99.51456311
81	1	0.121359	99.63592233
85	1	0.121359	99.75728155
94	1	0.121359	99.87864078
97	1	0.121359	100



Graph 4

Findings:

1. Education and Democracy (1996) by Dewey J published by Macmillan Free Press, New York is the oldest book referred (in 2013). Its citation age is 97 years.
2. Average age of book citation 37 year
3. Maximum i.e. 36 (4.36%) books citations are 11 years old.
4. More than 1/4(26%) i.e. 217 books referred are 0- 9 year old, Over 90% books are less than 0-39 years old.
5. Almost half (52.18%) i.e. 430 books are 0-19 years old. So Half-life of books cited by teacher education researchers is=19 years. It means Teacher Education books cited, became obsolete after 19 years.

Conclusion:

1. It is noticed that the half-life period is longer for books than for journals in teacher education. In other words journals are getting obsolete fast as compared to books. This finding is proved to be true for almost all obsolescence studies^{1,2,3,4,5,6} regardless of disciplines. This also accepts the hypothesis that **Obsolescence rate of Journals is higher education is than that of Books.**
2. Obsolesces rate of teacher education is fast (period is small) compared to other social sciences^{4,5}; indicates that 'Teacher Education' is getting reformed with modern research and developments in the field. It's a promising fact for the subject to grow as scientific discipline.
3. Using the results of obsolescence study, after the respective period of a particular subject the documents may be weeded out or may be sent for digitization for long usability and durability. In a university library, it would be easier to calculate the rate of obsolescence and develop a policy to discard the old volumes.
4. Papers referred and the above study indicate that the obsolescence rate differs from one subject to another and also from one bibliographic form to another one. Also some titles books or journals though very old always in high demand by the information seekers. So care should be taken to consider the subject individuality also instead of generalizing the withdrawn policy only on the basis of obsolescence study.

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