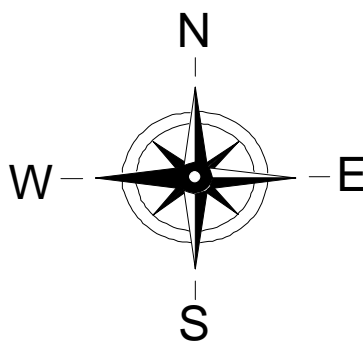


Medical Library Association
Nursing & Allied Health Resources Section

Task Force on Bibliographic Access for the Allied Health Literature

Mapping the Literature of Allied Health

Project Protocol



Barbara F. Schloman
Task Force Chair
August 1997

Mapping the Literature of Allied Health Project Protocol

The Mapping project is exciting and ambitious. Central to its success is the use of a common methodology so that, in addition to profiling the literature of each of the allied health fields, it will be possible to make comparisons among fields and to present this as a comprehensive effort to address needs of a key segment of the health care delivery system.

Because the Project is evolving and involving more participants, I have tried to “codify” the protocol being used. This is an effort to bring together many disparate descriptions relating to different parts of conducting the study and to point to some examples of work already done. Hopefully, this will make the task ahead more obvious and understandable. I am thrilled by your interest and anxious to work you in this common effort. Read on! Barbara

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Gist of the Study

This study uses a bibliometric approach to characterize the literature of a field. Specifically, key journals in a field are selected (from the Brandon-Hill list or the official journals of the professional associations of that field). These are the Source Journals. The references appearing in each article in the Source Journals for a three-year period are analyzed. These are the Source Articles, and the analysis is done by making note of what journals (and other materials) are being cited and the year of publication of those cited items.

How many items might there be? It depends on the status of scholarly discourse within the field and the number of source journals used. In Phase One of the project, there were about 5,300 cited items analyzed for radiologic technology, as compared to nearly 23,000 for physical therapy. Of the five areas studied in that Phase, the number of cited journal references out of the total references analyzed varied from 63% to 90%. It is these cited journal references that comprise the heart of the study.

Bradford’s Law of Scattering predicts that for any literature, only a few journal titles account most of the use. Actually, he breaks the usage into three “zones,” each of which supplies 1/3 of all references. Zone 1 is the core of productive journals that represents the most frequently cited titles. In health education (the field that I did in the Phase One study), this zone is comprised of only 14 journals; Zone 2 has 101 journals; and Zone 3 has the majority of scatter with over 1050 journals! I also learned how old these references were, what other types of materials are cited, and the extent to which the Zone 1 and 2 titles are under bibliographic control by the major indexing/abstracting services.

Planned Study Outcomes

The central project outcome is to understand and take action to improve the level of indexing of the core journal literature of each field. Specifically:

1. Empirical data will characterize the nature of the literature of a given allied health field: how extensive is the dispersion of the journal literature, what are the core journals, what types of material are cited, how old the cited material is.
2. Results will show the extent to which the journal literature of this field is under bibliographic control by the major indexing/abstracting services (e.g., title coverage for how many of the core journals plus the extent of that coverage).
3. Expectation is to present this work to the library community: potentially through a poster session or presentation; definitely through publication in a library journal such as *BMLA*.
4. Potential exists to present this work to the specific allied health profession represented to inform them of what comprises their core literature, its characteristics, and the extent of its bibliographic control--and which indexing service serves them best at the time of the study.
5. Challenge will be to influence indexing/abstracting producers to increase coverage of core journals within a field.

Mapping Professional Activities and Publications to Date

As an example of activities engaged in to date by participants in the Mapping project:

Publications

OVERVIEW paper:

Schloman BF. Mapping the literature of allied health: project overview. *BULLETIN OF THE MEDICAL LIBRARY ASSOCIATION*. vol. 85, no. 3 (1997 Jul): 271-7.

Burnham JF. Mapping the literature of radiologic technology. *BULLETIN OF THE MEDICAL LIBRARY ASSOCIATION*. vol. 85, no. 3 (1997 Jul): 289-92.

Burnham JF. Mapping the literature of respiratory therapy. *BULLETIN OF THE MEDICAL LIBRARY ASSOCIATION*. vol. 85, no. 3 (1997 Jul): 293-6.

Schloman BF. Mapping the literature of health education. *BULLETIN OF THE MEDICAL LIBRARY ASSOCIATION*. vol. 85, no. 3 (1997 Jul): 278-83.

Slater LG. Mapping the literature of speech-language pathology. *BULLETIN OF THE MEDICAL LIBRARY ASSOCIATION*. vol. 85, no. 3 (1997 Jul): 297-302.

Wakiji EM. Mapping the literature of physical therapy. *BULLETIN OF THE MEDICAL LIBRARY ASSOCIATION*. vol. 85, no. 3 (1997 Jul): 284-8.

Posters and Presentations

Mapping the allied health literature. Poster, Annual Meeting, Medical Library Association, 1995, Washington DC.

Schloman, Barbara F. Staking out the boundaries: mapping the literature of allied health. Paper presented, NAHRS Program, Annual Meeting, Medical Library Association, 1997, Seattle WA.

Mapping the allied health literature, phase II. Poster, Annual Meeting, Medical Library Association, 1997, Seattle WA.

Designing the Study for Your Field (with examples from the Health Education study)

For basic background on the study and its methodology, you should refer to the “Overview” article published in the July 1997 of *BMLA*. The Phase One papers also appear in that issue for your to refer to.

1. Research any background information on your field and its literature.

Review the status of the field as it now defines itself: academic preparation (two-year, four-year, graduate degree program); credentialing/accreditation; professional associations, etc. One good initial source is the *Allied Health and Rehabilitation Professions Education Directory*.¹ This will help you determine what the appropriate source journals might be. Also, do a literature search to see what bibliometric studies have been done for your field or if any articles exist which discuss the characteristics of the literature and what might be considered “core.”

All of this is ground work for the manuscript you will prepare later. You need to be able to present your findings within the context of what is happening in this allied health field today. So it is time well spent.

Example: I found good background on the development of health education, recent efforts for role delineation and credentialing, national priorities for health education/promotion, and several previously published bibliometric studies. This helped in interpreting my results which showed a heavy influence of the social sciences literature and a significant use of government documents.

2. Determine which journals are appropriate source journals for your field.

This is the most critical decision you will make because the journals you select will influence the results. It is one which must be defensible in order for your results to have credibility. There are two obvious avenues here:

a. Brandon-Hill allied health list:² is your field covered here? Because this is a well-established standard list, it provides an excellent starting point.

b. official journal of the professional association(s): this has the advantage of carrying the imprimatur of the professional association and of being the journal most accessible and used by the practitioners in that area.

Beyond this, you might consider contacting the educators in that field to get some consensus as to what is central to them.

Example: My area of “health education” was not included in the Brandon-Hill list. I chose the official journals of 4 representative professional associations in health education as my source journals. Each association covered health education professionals working in different worksite areas: school health, college health, public health, etc.

3. Determine what cited format types are typical for your field.

The main interest is in collecting information on cited journals. However, we are also interested in developing a profile of the literature being used overall. Therefore, we want to know how much books and other formats are relied upon. This may vary by field, so you may need to do a small test. Every study should have at least the following three categories, which you will need to define as to what you have included so that your data collection is done in a consistent fashion and you can report what it does and does not include:

- a. journals
- b. books: monographs, proceedings.

¹ AMERICAN MEDICAL ASSOCIATION. *Allied health and rehabilitation professions education directory*, 1996-1997. 24th ed. Chicago: The Association, 1996.

² BRANDON AN, HILL DR. Selected list of books and journals in allied health. *Bull Med Libr Assoc* 1996 July;84(3):289-309.

c. miscellaneous: everything else. Personal communications, dissertations, abstracts of papers, newspaper articles, etc. would go here. You may want to track an individual type. For comparison purposes between fields, select categories here will be combined in to form a general miscellany.

Example: For the health education, I had four categories for format types:

- a. journals
- b. books
- c. govt. docs. (which I determined were used to a significant extent; citations to government serials, such as *Journal of the NCI*, were counted as “journal” type).
- d. miscellaneous

In my health education article, I reported the information for these four types. When the health education findings, however, were compared with other fields in the *Overview* article, the govt. docs. data was melded into the misc. category.

Data Collection (with more examples from the Health Education study)

1. Determine what you will include for source material.

The source journals were covered in the preceding section. Two other areas are: time period and source articles.

a. time period: The overall Mapping project is being done in Phases. Our intent is to get several papers through to completion at the same time so that they might be submitted as a group to *BMLA*. The editor is willing to consider a group of papers; and, if they are acceptable, to publish them together. This is advantageous in that it helps the Project hang together better and establishes a cohort that can share experiences and motivate each other to get the job done. So.....back to time period.....it is dependent on what group you are part of as to which three-year period will be used. Make certain you are clear on this. Obviously, we are trying for as much currency as possible.

b. source articles: Now you know which source journals you will be using and what three-year period you need to look at. Next you must determine which articles (i.e., source articles) within the source journals for that time period you will analyze. For the most part, each study is considering full journal articles only and not letters to the editor, editorials, etc. Again, you must determine what is important and use that as your guide.

Example: I decided to include only full articles and eliminated those that were practice briefs, teaching ideas, etc. In part this was because it was obvious that the full articles were going to be more research oriented and that I would have plenty to work with.

2. The practicality of using your source material.

Photocopies: this will vary by individual situations, but there is a real economy to photocopying the reference lists from the source articles you will be considering. Then it is possible to work from those copies at home or wherever.

Example: I photocopied the table of contents of each journal issue I was including, plus the reference list of the source articles from that issue that would be included. I numbered each article sequentially within that source journal for the given year. I did this on the table of contents and also on the photocopied reference list and included it as a unique identifier when inputting (more on this below). Anyway, it helped me keep track of individual entries, so I could go back if something was unclear.

Availability: if you cannot get physical access to any of the material, let me know. I will post your request to my distribution list of participants. In the past, fellow Project researchers have been very generous in supplying photocopies from issues held by their libraries.

3. Data elements to collect.

For each cited reference in each source article, note the following:

- a. for a journal article: which journal title is cited and its publication year.
- b. for a book: note the format “book” and the publication year. You do not need to keep track of the titles of the books, unless you would want collect this information to amplify your basic study or for some other purpose.
- c. for an item in the “misc” category: note the format “misc” (or the more specific format type if you decided to do that) and the date. No need to keep track of titles of this material.

NOTE: some publication years will be for “in press” materials or “no date given;” record accordingly.

4. Practicality of collecting the data.

Using database software: The advantage of this approach is that it allows you to set up a template or coding form that you can use to input and later to sort the results.

Example: I used the database application in Microsoft Works and created a template which I filled in for each item. Below is a sample of the fields and how I used them:

<u>Source Journal</u>	<u>Source Year</u>	<u>Reference Number</u>	<u>Cited Journal</u>	<u>Cited Year</u>
HEQ	1993	02-01	book	1980
HEQ	1993	02-02	Arthritis Rheum	1989
HEQ	1993	02-03	Health Educ Q	1985
HEQ	1993	02-04	Patient Educ Counsel	1984
HEQ	1993	02-05	govtdoc	1977
HEQ	1993	02-06	Am Psychol	1982
HEQ	1993	02-07	book	1986
HEQ	1993	02-08	Arthritis Rheum	1989
HEQ	1993	02-09	Soc Sci Med	1989
HEQ	1993	02-10	misc	1989

This example is for: *Health Education Quarterly*, 1993, Article #2, References #1-10.

Reference 02-01 is the first item in the reference list of that article. It was a BOOK format. I didn’t need to collect book titles, so I simply recorded BOOK in the cited journal column. Therefore, when I sorted on this column, I would find out how many books had been cited, as well as how many times a given journal had been cited. Then I recorded the publication year of the cited book (1980). You’ll see that I used the “cited journal” field to capture all my format type information: BOOK, GOVTDOC, MISC.

Cited journal title can vary amazingly. I entered the abbreviation as it appeared in the reference list and went back and did “authority work” to make all these conform later.

Using a manual method: You could choose to collect data manually by creating an alphabetical list of cited journals as they appear or by placing cited journal titles on cards, as well the other data items of format type and publication year.

Analyzing the Data Collected from the Source Journals

Actually bringing order and understanding to this mass of data is the next order of business. You might want to look at the sample tables elsewhere in this document or any of the published articles from the study to see how you finally want to be able to present your data.

1. Do the following tabulations
 - a. tally the number of cited references by each of the format types (including those that were journals)
 - b. tally the number of times a given journal title was cited

NOTE: this is where you need to do “authority work” on your data to get consistency among how items were entered so that all cited references to the same journal are counted together. Also, we have made the decision to try and catch all title changes and to merge those together under the most recent title. This makes the assumption that although the title may have changed, we are dealing with the same intellectual entity and so want to track it as such.

2. Do the following cross tabulation: format type by publication year

Defining Journal Zones

Bradford’s Law

As you’ve already seen from inputting and tabulating your data, some journal titles were used much more frequently than others. You have a sense that there is a core of journals that are highly productive and a much broader “scatter” beyond that. This is where we employ Bradford’s Law of Scattering, which says: if a large collection of papers is ranked in order of decreasing productivity of papers relevant to a given topic, three zones can be marked off--such that each zone produces 1/3 of the total relevant papers. The first, the nuclear zone, contains a small number of highly productive journals; the second contains a larger number of moderately productive journals; and the outer zone a still larger number of journals of low productivity.

Creating the Zones

1. In order to determine this, create a ranked listing of your cited journal titles based on the number of times each was cited. You will create a list with three columns:

Cited Journal	# cited references	Cumulative # of references
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2. Place the most frequently cited title at the top of the list along with the number of citations it had and so on down the entire list. In the third column you will begin at the top and cumulate the number of references represented when that title’s cited references are added to all of those ahead of it on the list.
3. Take the total number of cited references and divide by 3. Start at the top of the list and go down the listing of cumulative # of references to determine the place at which 1/3 of the citations are represented. This is the dividing line between Zones 1 and 2. Continue down the cumulative list until 2/3 of the citations are accounted for. This divides Zones 2 and 3.

Determining Indexing Coverage (from the Project *Overview* paper)

Primary indexing sources were checked to determine the extent of coverage given to the cited journals in Zones 1 and 2, since these journals generated two-thirds of the cited references appearing in the source journals during the period studied. In order to analyze the current status of indexing by the services, an effort was made to determine the total number of articles published in each cited journal title in **YEAR**. This was followed by searching each cited journal title in each of the indexing tools under investigation to evaluate what percentage of the total number of published articles were indexed. The assumption made was that, having identified cited journals in Zones 1 and 2 as being core for the field, indexing coverage of these journals as a whole was critical to insure access and use of this key literature by the field’s practitioners and researchers.

The year **YEAR** was chosen as the representative year because it was thought to be the most recent year at the time of the study for which indexing by the various services could be expected to be complete. The indexing analysis, then, reflects the most current picture possible of the indexing coverage, rather than the status of available indexing at the time the source articles were published.

It was not feasible to count first-hand the number of articles published in the cited journals for **YEAR**. Rather, this was determined using electronic sources. Several listings of “periodicals indexed” were scanned to determine which indexing services purported to provide complete coverage. These included: *List of Journals Indexed in EMBASE*, *NLM List of Serials Indexed for Online Users*, *List of Journals Indexed in CINAHL*, *List of Journals Indexed in Current Index to Journals in Education (CIJE)*. Claims for complete indexing coverage of cited journals were considered reliable, so that the cited journal could be searched in that indexing source and the resulting number of articles indexed for **YEAR** could be considered the entire population of articles published by that title in that year. For article counts not available through this means, researchers checked the UnCover and OCLC FirstSearch ArticleFirst table of contents services. For journals that ceased publication before **YEAR**, the final year of publication was searched.

Once total article counts for **YEAR** had been established for each cited journal, journal titles were searched in all of the indexing sources being considered to determine the actual number of articles indexed in **YEAR**. For each database, the number of **YEAR** articles indexed was compared to the number established as the total published. This percentage was used to determine the level of indexing coverage given to each cited journal title by an indexing service based on the following scale: 5 (95-100%); 4 (75-94%); 3 (50-74%); 2 (25-49%); 1 (1-24%); 0 (<1%). Finally, points awarded using this indexing scale were added for each indexing service to determine quantitatively the overall indexing strength demonstrated by the index for the given allied health field to allow for further comparison.

NOTE:

YEAR used depends on which phase you are in. We want currency and that all manuscripts that get published together have used the same year for comparison.

Indexes checked: check your zone 1 and 2 titles against both CINAHL and MEDLINE. Choose any other indexing tools which you consider to be important.

Communication and Closure

I see my role as providing oversight to the Project, supporting the participants in any way possible, and helping to bring closure to individual studies. So I am going to try to do the following:

- enlist the participation of librarians to address fields not yet studied.
- provide a current roster to enable participants to communicate with each other and with me.
- work to form groups of participants that can work together toward joint publication of their papers.
- serve as the first editorial clearinghouse of manuscripts to insure the greatest clarity and consistency possible before submission. Phase One went through at least three revisions before we felt ready to submit the manuscripts. I will send the papers in as a group. However, *BMLA* will review each separately by different teams of reviewers. My goal is to try to insure that they are as strong and as consistent in format as possible.
- work with participants to try to influence index/abstract producers to increase coverage of select titles.

Manuscript Outline

Abstract

Introduction: This should include a short history of the allied health field that you are dealing with, including educational preparation for the field and any discussion of the needs the field has articulated with regard to the need to increase research, raise academic preparation levels, increase scholarly activity and communication, etc.-- as this all ties in with our concern about knowledge base development and information transfer from research to practice. Much of your literature references will probably be here.

Method: Here you will be able to refer to and cite the common method used and published earlier in the Project Overview paper. You will need to highlight any special considerations you made. Specifically, justify the basis

upon which you selected the source journals; why you chose the format types you did and how you defined their application; which indexing service you checked for coverage and why.

Results: You will want to review results here, but not just read back the tables for the reader. Point out what stands out--you want to help the reader know what to look at in the tables.

Discussion: This is where you can give interpretation to the results....again to help the reader digest the results and have the benefit of your thinking as to what is going on here, what is important to consider, etc.

Conclusion: What does this mean for your allied health field? What are reasonable requests to make of database vendors with regard to increasing coverage for this area? What might librarians need to do to serve this clientele better based on these findings?

References: Follow the BMLA instructions for authors when citing publications.

Tables

Creating Tables

Four tables will accompany your manuscript. These are the same in each of the papers. You can review the published papers to get a better idea of the layout on these.

Remember: make certain that columns/rows add up to 100% where appropriate; reconcile rounding errors as needed. If less than one percent, report as <1.0%.

Also: make certain that the numbers in the tables correspond to the numbers discussed in the text.

Sample tables from the Health Education paper follow.

==>Please see notes that accompany Table 2. Also, only a portion of Table 4 is included.

Sample Tables (from Mapping the Literature of Health Education)

Table 1

Cited format types by source journal and total frequency

Cited format type	Source journal				Total	
	HEQ	JACH	JHE	JSH	No.	%
Books	666	356	669	394	2085	18.9
Government documents	127	83	186	271	667	6.0
Journal articles	1781	1212	1960	2208	7161	64.8
Miscellaneous	230	150	338	423	1141	10.3
Total	2804	1801	3153	3296	11054	100.0

==>NOTES for constructing Table 2:

- a. Include raw numbers in addition to providing percentages. This differs from the Health Education Table 2 as published, but is a needed change. I have placed XXX in modified table below where raw numbers should go.
- b. "in press" items should be included in the most recent time period.
- c. Provide a separate line for "no date given" items.
- d. Time segments used are also dependent on what Project Phase you are in.

Table 2

Cited format types by publication year periods

Publication year	Format type (%)									
	Books		Government documents		Journal articles		Miscellaneous		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
1990- YEAR *	XXX	16.4	XXX	31.3	XXX	20.1	XXX	28.8	XXX	21.0
1985-1989	XXX	34.6	XXX	43.6	XXX	47.9	XXX	47.7	XXX	45.1
1980-84	XXX	24.9	XXX	10.8	XXX	18.7	XXX	10.3	XXX	18.6
1970-79	XXX	17.4	XXX	10.2	XXX	10.3	XXX	6.5	XXX	11.3
1960-69	XXX	4.2	XXX	0.6	XXX	1.7	XXX	1.5	XXX	2.1
pre-1960	XXX	2.2	XXX	1.5	XXX	1.1	XXX	2.3	XXX	1.4
not available	XXX	0.3	XXX	1.9	XXX	0.2	XXX	3.0		0.5

* Includes in press materials.

Table 3

Distribution by zone of cited journals and references in health education

Zones	Cited journals		Cited references		Cumulative total
	No.	(%)	No.	(%)	
Zone 1	13	(1.1)	2400	(33.5)	2400
Zone 2	80	(7.1)	2350	(32.8)	4750
Zone 3	1041	(91.8)	2411	(33.7)	3153
Total	1134	(100.00)	7161	(100.00)	7161

Table 4

Distribution and indexing coverage of cited journals in Zones 1 and 2

Cited journal	Cited					
	refs.	Indexing coverage by indexing service*				
	No.	CINAHL	EMBASE	ERIC	MEDLINE	PsycINFO
Zone 1						
1. J Sch Health	436	5	0	3	5	0
2. Am J Public Health	312	1	3	0	5	2
3. Health Educ Q (formerly Health Educ Mono)	304	2	0	3	5	4
4. J Health Educ (formerly Health Educ)	230	4	0	2	0	0
5. J Am Coll Health	195	0	4	2	5	3
6. JAMA	184	1	4	0	5	0
7. Fam Plann Perspect	152	2	5	0	3	0
8. Prev Med	117	2	4	0	5	0
9. Pediatrics	108	2	4	1	5	0
10. J Am Diet Assoc	104	3	3	0	5	0
11. J Consult Clin Psychol (formerly J Consult Psychol)	89	0	4	4	5	5
12. N Engl J Med	88	1	3	0	5	1
13. Public Health Rep	81	2	5	0	5	0
Zone 2						
14. J Pers Soc Psychol	79	0	0	0	3	4
15. MMWR Morb Mortal Wkly Rep	73	0	0	0	5	0
16. J Adolesc Health (formerly J Adolesc Health Care)	70	4	3	0	5	3
17. Am Psychol	64	0	0	1	2	5
18. Health Psychol	58	4	0	0	5	5
19. Soc Sci Med	56	2	4	0	5	3

20. Health Educ Res	55	4	4	0	0	3
21. J Nutr Educ	50	5	0	0	0	0
22. J Appl Soc Psychol	49	0	0	0	0	5
23. Am J Health Promot	48	3	5	0	0	3
71. Child Dev	17	0	0	3	4	4
72. Pediatr Clin North Am	17	5	1	0	5	0
73. Wellness Perspect	17	0	0	0	0	0
74. Arch Intern Med	16	0	5	0	5	0
75. Clin Chem	16	0	5	0	5	0
76. J Homosex	16	0	5	0	5	2
77. J Soc Issues	16	0	0	1	0	4
78. J Natl Cancer Inst	16	0	3	0	5	0
79. Med Sci Sports Exerc (formerly Med Sci Sports)	16	0	4	0	5	1
80. Milbank Q (formerly Milbank Mem Fund Q)	16	0	0	0	5	3
81. Obstet Gynecol	16	3	5	0	5	0
82. Psychol Rev	16	0	0	3	3	4
83. J Chron Dis (continued by J Clin Epidemiol)	15	0	5	0	5	0
84. J Commun	15	0	0	1	0	1
85. J Community Health	15	3	4	1	5	0
86. Am J Orthopsychiatry	14	0	5	0	5	5
87. Circulation	14	0	4	0	5	0
88. Educ Week	14	0	0	0	0	0
89. Hygie (formerly Int J Health Educ; continued by Promot Educ)	14	0	0	0	5	0
90. J Abnorm Psychol	14	0	5	0	5	5
91. J Alcohol Drug Educ	14	0	0	5	0	4
92. J Youth Adol	14	0	0	4	0	5
93. Psychol Women Q	14	0	0	1	0	3
Total indexing coverage score		77	236	66	305	185

* Indexing coverage scale: 5 (95-100%); 4 (75-94%); 3 (50-74%); 2 (25-49%); 1 (1-24%); 0 (<1%).
