

Retrospective Application of Subject Headings, Part 1 –a Case Study at the Central Washington University Library

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Introduction

Subject access to the materials a library holds has long been a primary function of the library catalog¹. While much has been written about improving subject access and improving the *Library of Congress Subject Headings* (LCSH), this author was not able to find anything written in the past ten years about the retrospective application of subject headings to already cataloged bibliographic records.

Through the author's participation in the Subject Authority Cooperative Program (SACO), he was made aware of the Library of Congress's procedure of reviewing the existing bibliographic file to determine the number of bibliographic records that would be affected by the new or changed heading. The Library of Congress (LC), after a new heading and its subject authority record (SAR) are created, applies that term retroactively to suitable bibliographic records. The author is not aware of LC's exact procedure; it is only referred to briefly and in general terms.²

The subject heading **Sustainable development** and its SAR were created in 1992, yet the terminology was used in works published and cataloged before then. *The Sustainable Society* (1977) is a work published years before the appropriate SAR was created, yet to which the heading has been retrospectively applied by LC, in this case in 1993³. In libraries that do not subscribe to the updated records from LC, that has not been the case. In those libraries, that title has subject headings that were assigned when it was when first cataloged in the late 1970s⁴. Of course, changes made by LC affect only items in its collection and catalog. Bibliographic records created by other libraries would not be updated.

While many libraries update their bibliographic records when existing headings change (e.g., from **Labor and laboring classes** to any of three headings), it is not known how many libraries attempt to retrospectively apply new headings to existing bibliographic records in the way that LC does. The lack of publications on this topic indicates little activity in this area. Additionally, the static nature of bibliographic records in many catalogs (as illustrated by the **Sustainable development** case) also indicates very little activity in this regard.

A procedure for the retrospective application of subject headings is needed to fulfill the catalog's objectives regarding subject access. Without it, patrons are misled in various ways. In the case where the heading is simply not included in an appropriate bibliographic

record, patrons are denied access after they have found terminology that suits their research needs. Additionally, the syndetic structure of authority records will actively mislead patrons. In catalogs with authority modules in place, patrons are led from the heading

Economic development—Environmental aspects

to the heading

Sustainable development.

In catalogs where bibliographic records are static, the patrons who take that guidance (frequently just a mouse-click's effort) will then be diverted from their research needs, since some bibliographic records for that item will not have been updated with the newer and more appropriate subject heading. Thus, either on their own or with guidance, patrons find less than a library has.

The intent of this article is to describe a methodology used to implement a procedure for retrospective application of subject headings new to the catalog. The focus is on the implementation of a practical procedure for this process and includes a discussion of preliminary results. Part 2 of this article will provide results from a larger set of data and also investigate secondary implications.

The author believes that if libraries are committed to fulfilling the objectives of the catalog as related to subject access—that is, to allow a patron to find what a library holds by subject—then a procedure for the retrospective application of subject terminology is required.

Background Environment

The catalog at Central Washington University Library (CWU Library), called CATTRAX, is the one used for this study. The author became the head of cataloging at CWU Library in October 1995. The CWU Library migrated to the Innovative Interfaces system, INNOPAC, in early 1996. At that time, bibliographic and authority records were loaded into the catalog, and new records have continued to be loaded. While authority control has been ongoing, it has been very sporadic. Automated authority control was performed on the original tape load of records and also on a subsequent retrospective conversion project in late 1997. No ongoing, systematic, subject authority control is yet implemented. The number of bibliographic records in the catalog is approximately 700,000.

Methodology

For the purpose of this study, a list of subject headings proposed in calendar year 1995 was extracted from the CATTRAX. Proposals are assigned a number with an SP prefix when the heading is keyed into the LC system. The heading, when accepted, has its prefix changed to an SH. The number assigned however, does not change. The headings from 1995 were selected based on the SH number beginning with a 95. Five hundred fifty-nine

records were compiled into this list on June 25, 1999. The [Appendix](#) contains a list of headings reviewed.

The records proposed in 1995 were selected because they denote an easily culled subset of records that, by and large, had not been reviewed by the author already for a retrospective application process. While the author undertakes the retrospective process on an ad hoc basis in general, and comprehensively for all new headings proposed via SACO participation, as yet there is no systematic procedure in place at the CWU Library for this process. If a systematic procedure were already in place (or becomes employed) then headings added based on calendar year of addition to the catalog (or some other periodic time frame) would be used.

The first fifty valid headings in this file were reviewed for retrospective application. Headings created by the CWU Library's participation in the SACO Program were omitted from the study, as were headings that had been previously reviewed by the author⁵. The headings, after being compiled, were not sorted further. They are generally in SH number sequence. Due to some vagaries in the MARC load table at the time records were loaded, some records are out of the SH sequence.

The procedure followed was meant to allow for timely processing of records. In the description of the procedure, the subject heading **Learning strategies** (sh95-636) will be used as an illustrative example.

Procedure:

- Each heading was searched in technical mode (INNOPAC has a public and a technical mode) as a subject string. Technical mode allowed for the immediate application of the new heading, when it was determined appropriate.
- When searched, the number of records, or hits, found was recorded (omitting the authority record itself)
- (subject) **Learning strategies**—5 hits
- For geographic headings, the heading was searched up to the qualifier, but did not include the qualifier. In INNOPAC, this allows for retrieval of the heading when used as a subdivision as well as a heading.
- Each heading string was searched as a word search
- The number of records found was recorded
- (word) **Learning strategies**—169 hits
- Results of the word search were then limited by title words of the subject string
- Records were browsed for appropriate titles
- The new subject heading was applied

Limiting the search by title was selected from the many limiting options available in the INNOPAC system, because of section 12 of instruction sheet H 180, in LC's *Subject Cataloging Manual: Subject Headings (SCM:SH)*.

“Concepts in titles. Titles and subtitles are important because they sometimes state in the words of the author or publisher the subject matter of the work. Bring out or

account for each topic of subject retrieval value that is identified in the title or subtitle and discussed in the work”⁶

While there are caveats for this practice, in general it is a principle that catalogers follow and which patrons should expect.

Each broader term from the subject authority record was then searched as a subject string

- (subject) **Learning, Psychology of**
- Results were again limited by words of the new heading (**Learning strategies**) in the title
- Records were browsed for appropriate titles
- The new subject heading was applied
- Each “see from” reference was searched as a word search in the system
- “See from” references that were only inversions of word order were not included in this step
- Results were again limited by words of the new heading (**Learning strategies**) in the title
- Records were browsed for appropriate titles
- The new subject heading was applied
- Each heading was then reviewed again as a subject string
- The number of records found was recorded
- (subject) **Learning strategies**—11 hits

The number of records found includes the heading or the heading—subdivision string. In the CWU Library catalog, word searches search on names (personal, corporate, and conference) titles (including uniform, alternate, and series) subjects, summary notes, and contents notes.

When suitable bibliographic records were discerned as viewed, no further review of materials was carried out. That is, not all the physical items were pulled and reviewed for appropriateness. When probable titles were discerned, those titles were searched in various online catalogs. If that did not resolve the question, then the item was paged from the stacks and reviewed. If appropriate, the new heading was added to the bibliographic record.

Total new headings were then tallied.

Results

For the fifty SARs reviewed, fifty-one new headings were added to the catalog’s bibliographic records.

Table 1 gives the breakdown by number of changes.

Table 1

SARs	Changes per SAR	Number of changes made to bibliographic records
33	0	0
6	1	6
3	2	6
2	3	6
2	4	8
0	5	0
3	6	18
1	7	7
Total	50	51

No more than seven new headings in bibliographic records were added for any individual subject heading in this process. The results in Table 1 account for those headings added when strictly following the procedure as outlined. In the following discussion, methods in which additional headings were added to the catalog are described. Those headings are not included in Table 1. An adjusted count as well as a list of all headings in this study are included in the appendix. By using extra-procedural strategies, an additional twenty-one headings were added, bringing the total number of changes to seventy-two.

Discussion

The appropriateness of application of the newer terminology to existing bibliographic records is of concern. Existing resources do help alleviate doubt in some situations. A number of items had updated records in OCLC's WorldCat and were available for consultation quickly and cheaply. These same records are also freely available via LC's catalog. WorldCat, with member records, is a larger resource than is LC's catalog. In one instance, the information in a 653 field from a bibliographic record in WorldCat made it clear that the newer term was appropriate for the existing bibliographic record. This information is not in the bibliographic record in LC's catalog. Occasionally, reviewing the physical items was the only method available for determining of appropriateness of the newer headings.

There are a number of other problem areas involved in this process which will lead to procedural changes for the second part of the project. Briefly, they are:

- Use of truncation for singular/plural terminology
- Headings with qualifiers
- Alternate terminology
- Broader terms
- Geographic headings
- Literature and music headings

Truncation

The use of truncation can be employed to facilitate retrieval and cut down repetitive searching. This happened in the areas of singular versus plural forms and headings that are qualified.

Singular/Plural Terminology

The problem of singular/plural terminology is of interest. When word searching the plural form, recall is limited. During the word search process in the INNOPAC system, truncation can be used. That is, rather than do a word search on **Adversaries (Persons)** (a reference to **Enemies (Persons)**), a better search would be (word) **adversar***. (The omission of qualifiers from the search strategy will be discussed next.) Thus, recall is improved. Another example from the sample is:

(word) **serial murderers** versus

(word) **serial murder***

When the word would result in an overwhelming number of records being recalled (**enem*** for example) then performing a double search of each term, the singular and the plural, proved more manageable.

Qualifiers

For headings that use qualifiers as a means of clarification, omission of the qualifier terms improved results. **Fetishism (Sexual behavior)** was better searched as the term **fetishism** and resulted in the correction of one incorrectly formulated heading.

Likewise, **Enemies (Persons)** was better searched as **enemies**. Doing so resulted in additional headings being added to the catalog. The same was true for the “see” references for **Enemies (Persons)**. A word search on **Foes (Persons)**, provided

nothing, while a word search on **foes** did, resulting in additions not only for persons, but also for **Insect pests** and **Bird pests**.

Broader Terms

For some headings, the SAR included broader terms that were further subdivided, usually by place, but they can also be topically subdivided. In those cases, searching also by the topical heading alone seems like a useful strategy, although in this sample it did not result any additional headings being added to the catalog.

In the case of **Learning strategies**, the broader term **Learning, Psychology** of did yield useful results. However, the earlier lack of the SAR for this record required catalogers to approach this topic as best they could for the intervening years before the subject heading was established. On one occasion, the headings assigned were **Learning** and **Cognitive styles** (among others). In this case, those terms ended up serving as ad hoc broader terms. Thus, some cataloging dispersal, rather than collocation, during the lag time between use of the term in the literature and SAR creation must be taken into account when searching the older terminology.

Alternate Terminology

Alternate terminology, not yet incorporated into the initial procedure, is also a valuable retrieval point. For example, **American bison hunting** has a broader term **Big game hunting**. This broader term did not net any significant results. A word search on **buffal* hunt*** did, which resulted in four additional headings being added to the catalog (two for the heading **American bison hunting**, two for the heading **American bison**). It also worked as a means of identifying the misapplied heading, **Buffaloes** (for Eastern Hemisphere animals) to works about the American buffalo.⁷

Another example of alternative terminology is demonstrated with the heading **Ethnic costume**. A word search on the heading itself or its broader terms yielded no changes. A word search on **traditional* costum*** yielded better results and resulted in five additional headings being added to the catalog (four of those being on one bibliographic record).

Geographic Headings

Geographic name headings provided few changes. Of the nine SARs reviewed, only two resulted in additions to the catalog, one each.

Literature and Music Headings

Literature headings and one music heading (**Music theater**) in this sample all proved to be too vague to be used. Each would probably require the review of physical items, yet even identifying appropriate items to review was not feasible.

Revised Procedure

The experience of this small sample has resulted in the following modifications to the review procedure. This new process will be followed in the next part of the project.

Procedure [revised]

- Search each subject as a phrase in technical mode
- Record the number of hits
- Search each heading string as a word search (in general, omit terms used in qualifiers)
- Limit by title words of the subject string
- Browse for appropriate titles
- Apply the new subject headings if appropriate
- Search each broader term from the SAR
- Limit results by words of the new heading in the title
- If the broader term is subdivided, search it also in its un-subdivided form
- Search ad hoc broader terms, if they were used
- Browse for appropriate titles
- Apply the new subject headings if appropriate
- Search at each “see from” reference as a word search
- Truncate plural forms to eliminate re-keying and to increase recall (or search by plural and singular form when recall is too large)
- Limit results by words of the new heading in the title
- Browse for appropriate titles
- Apply the new subject headings if appropriate
- If alternative terminology is appropriate, do a word search on that terminology
- Limit results by words of the new heading in the title
- Browse for appropriate titles
- Apply the new subject headings if appropriate
- Search each heading again as a subject string
- Record the number of hits

During this process, limitation by title word or consultation with reference sources other than the catalog will happen only as needed.

Additions of the subject term will again be tracked, as will secondary changes noted in the previous discussion, e.g., corrected headings, additional headings for other topics, etc. Also, any potential SACO applications will be identified. In this sample, a likely SACO proposal would suggest that **Traditional costume** be added as a “see” reference to **Ethnic costume**.

Conclusions

The procedure followed produced usable enhancements to many catalog records. The process allows for the application of newer terminology to appropriate

items. It secondarily leads to the application of additional headings to provide appropriate access to already cataloged items.

Fulfillment of the catalog's objective for subject access is improved by this process. In an age of shrinking acquisitions budgets, the provision of effective access to materials held by the library is vital. Coupled with the stated objective of the catalog to allow a patron to find what a library has on any subject, and the great potential for an effective authority module to divert patrons away from previously cataloged materials, this procedure of retrospective subject application appears to be beneficial and practical.

References

1. Cutter, Charles Ammi. *Rules for a Dictionary Catalog*, 1876.
2. *Subject Cataloging Manual : Subject Headings*, 5th ed., 1996. Instruction sheet H 200, section 9: "Bibliographic file maintenance. Before submitting a completed proposal to the Subject Headings Editorial team, search the MARC database to locate existing bibliographic records that should be updated as a result of the new proposal. Enter the total number of records to be changed in a 952 field..."
3. The revision date is inferred from the LCCN for this title's bibliographic record (76024365 //r93), indicating a revision in 1993.
4. Searches conducted by the author in the following catalogs: Orbis (<http://orbis.uoregon.edu>); OhioLink (<http://olc1.ohiolink.edu/search/>); Melvyl (<telnet://melvyl.ucop.edu>), OCLC's WorldCat (in cataloging mode, via internet); LC's online catalog (<http://lcweb.loc.gov/catalog/>); University of Washington catalog (<http://catalog.lib.washington.edu/search~/>)
5. Some of the headings included in this study were potentially previously reviewed. Only those which were certainly previously reviewed were omitted from the sample. Thus, the results could have fewer changes than would otherwise have occurred, but not more results.
6. *SCM:SH* (1996), Instruction sheet H 187, section 1.
7. In one of the catalogs searched, the misapplied heading had been updated, but worsened. That is, it had been changed not to **American bison**, but to **Buffalo (N.Y.)**.

Appendix

Headings Reviewed in this Study

The category of **Changes+** includes changes made due to extra-procedural strategies as well as the application of heading not on this list to bibliographic records. For example, the heading **Bird pests** was added as a result of the word search on the term **foes**. **Foes (Persons)** is a “see” reference to **Enemies (Persons)**. Also, the term **Enemies (Persons)**, when used after a personal name heading, has the form **[name]—Adversaries**. This form of access was also added to a number of bibliographic records.

Headings are listed in the order in which they were reviewed.

Heading	Changes	Changes+	Total changes
Learning strategies	6	0	6
Computer network resources	0	0	0
Serial murderers	0	2	2
Reengineering (Management)	6	0	6
Whitewater Inquiry, 1993-	2	0	2
Stevens Pass (Wash.)	1	0	1
American bison hunting	2	5	7
Public relations firms	3	0	3
HTML (Document markup language)	0	0	0
Racism in psychology	1	0	1
Middleware	0	0	0
Electronic directories	4	0	4
Post-traumatic stress disorder in old age	0	0	0
Cyborgs	0	0	0
Yupik masks	0	0	0
Parachute games	1	0	1
Music theater	0	0	0
Religion in the workplace	0	0	0

Enemies (Persons)	2	7	9
Moon in literature	0	0	0
Junior high school libraries—Reference services	0	0	0
Gay adoption (0 entries in catalog; subsequently deleted)	0	0	0
Boise River Valley (Idaho)	1	0	1
Colville River Valley (Wash.)	0	0	0
Ethnic costume	6	4	10
Communitarianism	4	0	4
Boeing 777 (Jet transport)	0	0	0
Children's encyclopedias and dictionaries, Spanish	0	0	0
Charter schools	0	0	0
Hood River Valley (Or.)	0	0	0
Jaltepec River Valley (Mexico)	0	0	0
Artificial life	0	0	0
Internet (Computer network) and children	1	0	1
Dramaturges	0	0	0
Militia movements	0	0	0
CGI (Computer network protocol)	0	0	0
Plaza del Marques Site (Gijon, Spain) (0 entries in catalog; subsequently deleted)	0	0	0
Okanagan River Valley (B.C. and Wash.)	0	0	0
Pond aquaculture	7	0	7
Reproductions (Cataloging)	0	0	0
Workplace literacy	3	0	3
War stories, Polish	0	0	0
Controlled drinking	1	2	3
Hopi textile fabrics	0	0	0

Wildlife managers	0	0	0
Claude Harris, Jr. Building (Tuscaloosa, Ala.)	0	0	0
Capre Romain National Wildlife Refuge (S.C.)	0	0	0
Rwanda—History—Civil War, 1994	0	0	0
Fetishism (Sexual behavior)	0	1	1
Nahua dance	0	0	0
TOTALS:	51	21	72