

# Illinois Fire Service Institute Library Presentation

#### 2000 inFIRE Conference Ottawa, Canada May 9, 2000 Lian Ruan, Head Librarian





#### Mapping Multiple Vocabularies for Better Subject Access to Fire Science Materials

#### Abstract

Since August 1999, a project to map the Library of Congress Subject Heading (LCSH), Medical Subject Headings from the National Library of Medicine (MeSH) and other fire vocabularies systems has been carried out at the Illinois Fire Service Institute Library (FSI Library), University of Illinois at Urbana-Champaign. Named FireTalk, this map will become a printed, as well as a webbased electronic thesaurus. In the FSI Library's Online Public Access Catalog, LCSH, MeSH and other terms will be linked, thus enhancing retrieval or relevant bibliographic citations and facilitating multiple database searching.

### **Illinois Fire Service Institute**

 A Statutory State Fire Academy Since 1981
 Central Objective: Prepare and Help Illinois Firefighters and Other Emergency Services Providers Develop the Core Skills Required to Effectively Meet the Emergency Fire Service Needs of Their Communities

### ILLINOIS FIRE SERVICE REALITIES

1,293 Fire Departments	<u> </u>
70% of all Departments are VOLUNTEER / PAID ON CALL	20% Turnover Rate

### Academic Programs at FSI

FireFighting

- Hazardous Materials
- Counter-Terrorism
- Rescue
- Investigation and Fire Prevention
- Industrial Fires
- EMS (Emergency Medical Services)

#### Vision 2000 for the Future

Since 1981, Reach about 1/3 of the Firefighters in the State Annually In 1997, New Vision 2000 for the Future: Find the Best Ways to Reach **EVERY Illinois Firefighter with the** Training, Education and Information He/She Requires Each Year

### **FSI Library**

Established in 1990 as an In-house Library to Support the Training and Teaching of the Institute's Faculty and Students

Served the Local Fire Departments throughout the State from Time to Time in the Early 90's

### **FSI Library**

- Subject Strengths: Arson Investigation, Fire Fighting, Haz Mat, Counter-Terrorism, Rescue, Fire Education & Safety, Fire Services Management, Emergency Management, EMS and General Training
- Various Formats of Information
- Most Comprehensive Collection Dealing with Fire Safety and Science in the State of Illinois

#### **Outreach Program**

 Outreach Program Survey, 1998
 The Outreach Program Provides NO COST Fire/Emergency Information Services to EVERY firefighter in State of Illinois

# FSI, LTLS & ILL

- Obtained Full Membership in Lincoln Trail Libraries System (LTLS) in 1998
- Began Systematic ILL Procedures Statewide, thus Becoming a "Special Public Library" in Illinois

Web-Based Services & Delivery Mechanism

- Electronic Access to Web-Based Services and Information 24 Hours/Day, Seven Days/Week
- OPAC at the Institute's Web Site (http://www.uiuc.edu/unit/IFSI/)
- FireTalk, FSI Library On-line Thesaurus at the Institute's Web Site

# Illinois On-line Libraries Systems

Will Allow Access to the FSI **Collection via LTLS LSSAP-LINC** Use Internet or Local Library to **Access FSI Library** Before Joining LTLS, a Need to **Evaluate the non-LCSH Subject** Headings

## **The Problems**

Two Primary Cataloging Units at University Libraries: One in a Subject Area (e.g. Health Sciences Library), & One in the General University Library, Respectively Assigning MeSH & LCSH Headings

Small & Highly Specialized Library: Create Own Subject Headings, Along with the Standard LCSH

#### **The Problems**

Primary Difficulty in Subject Searches of Library Catalogs (On-line Catalogs or Card Catalogs): Finding Proper Form of the Subject Heading

In Gateways to Several Databases, Subject Searching Problems are Further Complicated Because Different Vocabulary Systems are Used

#### **Grant Applications**

LSTA (Library Service and Technology Act) Mini-grant, Bring in an Expert, in April 1999 LSTA Full Year Grant, in August 99

#### LSTA Mini-Grant Project

Hired Professor Pauline Cochrane

Formulated Procedures for Evaluating the Subject Index Vocabulary & Began to Create a True Thesaurus with a Map of Relevant MeSH, LCSH & Other Vocabulary Terms.

Trained Staff in Thesaurus Review & Maintenance.

#### **New Research Plans**

- 1. Create a FireTalk Thesaurus Approved Subject Headings with Syndetic Structure (UF, BT, NT, RT) & Mapping Information
- 2. Develop a Subject Authority File
- 3. Review Class Numbers As Access Routes
- 4. Develop Specifications for the Subject Mapping Information for Cataloging Practices & OPAC Search Display
- Produce a Printed & Web-based Electronic Version of FireTalk to Distribute to the Users
   & Other Fire Libraries around the World

#### The Solutions

#### Three Methods & Strategies:

Mapping
 Merging
 Switching

Evaluated Original List of Subject **Headings & Subheadings** Example of Subject Headings on Card: **Firefighters-Videos RT** Training Women firefighters (TH9505.H83K133 Training-Kansas) (TH9123.W84 Women firefighters)

Figure 1

Map Topics from the Following Multiple Vocabulary Sources by Using Multites: a) LCSH b) MeSH

c) National Emergency Training Center Learning Resource Center (NETC)

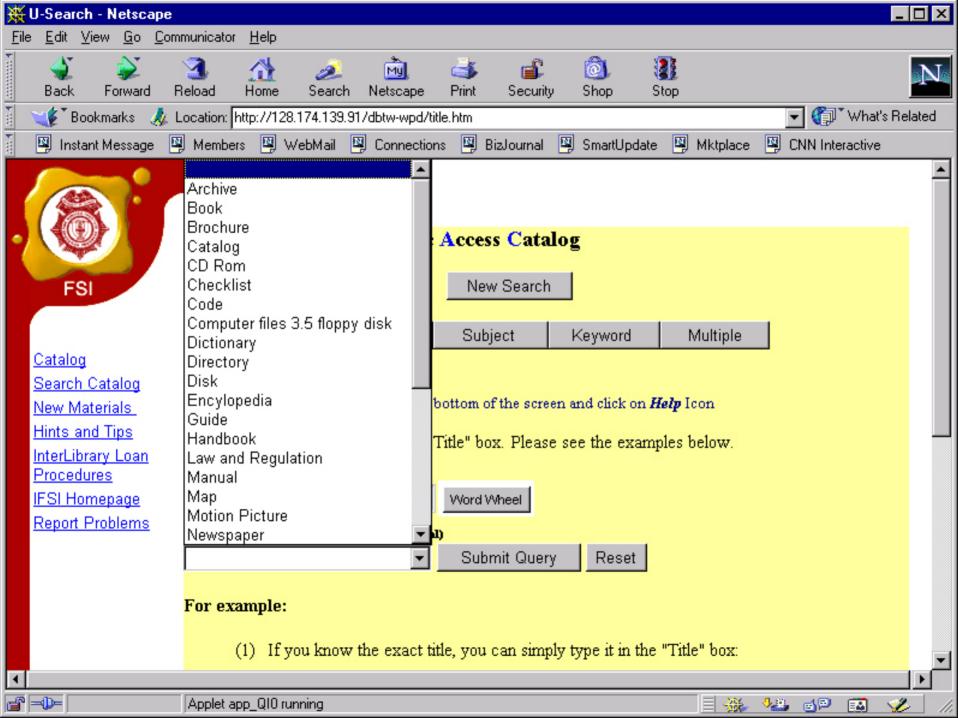
 d) New York State Fire Academy of Fire Science Library's periodical indexing system (New York)

**Routinely Consult:** 

- a) "American National Standard, Guideleines for Construction, Format, and Management of Monolingual Thesuri" (1993)
- b) MeSH Tree Structures
- c) Medical Dictionaries
- d) Handbooks in Fire Sciences
- e) IFSTA Manuals, etc.

Only Map Topical Headings from LCSH, MeSH & Others, NOT Geographic, Name or Uniform Titles Used as Subject Headings

Step #1 to Convert LCSH-like Headings: Relocated Terms Describing Format of Material, e.g. Video, Book, etc. to Another Data Field of the Bibliographic Record & Form a Pop-up Window on the OPAC as Record Type with a List



Step #2 to Convert LCSH-like Headings:

Deleted Geographical Headings & Proper Names from the List & Formed New Fields "Subject Name" with "Subject Date" & "Subject Place" on the OPAC

### FireTalk on the Web

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 Step #3 to Convert LCSH-like Headings: Established 14 Subject Categories (Called TT – Top Terms)

a) Establish Used For, BT-NT and RT Relations
b) Add Scope Notes, as Needed
c) Meet Program Directors for Evaluation
d) Review Reference Request Database to Study How the End Users Made Requests

- Beginning with the First Word in the FireTalk, Matching Term Sought in LCSH, MeSH, New York, & NETC
- If No Match, Cross References, or Alternative Headings Sought
- When Match, Note Relevant Cross-References, BT & NT & Add to FireTalk
- Look up Each Alternative Heading to Determine Its Relevance & Seek Additional Cross-references or Headings

The General Principle Followed:

Identify and Map One-to-One Correspondences between LCSH, MeSH, FSI, New York & NETC Main Headings

Map a LCSH & MESH Heading onto Each Other. Headings Have to be Co-extensive. One Could Not Be Broader or Narrower than the Other.

The Hierarchical Structure: Direct a User from a Known Heading to a Broader or Narrower Heading

No Attempt: Seek Matches that Could be Made by Boolean Combinations of Two or More Headings.

Go beyond the "Use for" or "See" Reference Structure

Cross-Reference Previous Used Terms to Change Those Records during an Update of the File or Provide the Searcher with Clues & Links between Terms

For Near-matches, Types of Problems: 1. Terms with Similar Meaning But Differ in: a) Word Order or Phrasing; Stoves, Wood (LCSH) Example 1 (FSI) Wood stoves Building, Fireproof (LCSH) Example 2 Fireproof buildings (FSI)

b) Spelling

#### Example 3 { Fire fighters (LCSH) Firefighters (FSI) (NETC) Fire-fighters (New York)

c) Singular vs. plural form: Example 4 Hoses (FSI) (NETC) (New York)

2.Terms that Differ But Are Somewhat Similar Meaning:

Example 5 { Fire extinction (LCSH) Firefighting operations (FSI) (NETC) Fire-fighting tactics (New York)

LCSH Handles Only General Concepts

MeSH Proved Quite Capable of Handling Specific Medical Topics

NETC & New York Provide More Detail Terms in Fire Science field Creating the Map from FireTalk to Other Word Lists

More Specific Terms in FireTalk Listed with \* Indication if Equivalent Term Appears in LCSH, MeSH, NETC, & New York

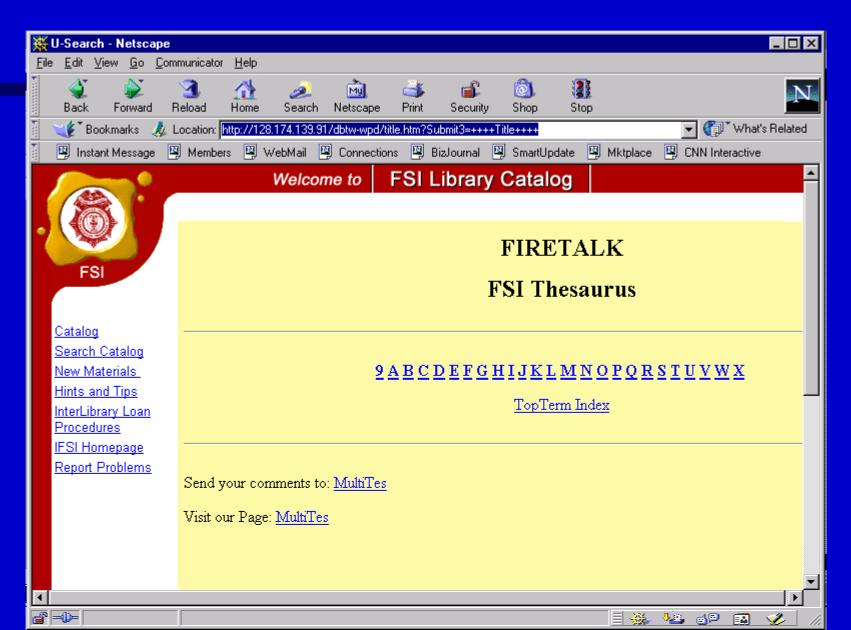
Giving Preference to LCSH Form, Headings Properly & Consistently Capitalized in FireTalk

Keep Mapping Terms as New Headings Added

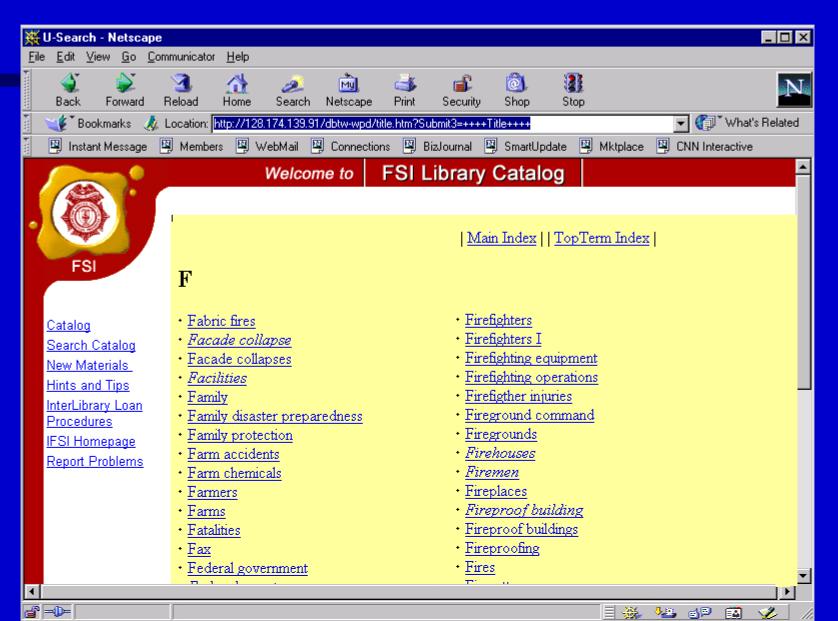
### FireTalk on the Web

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### FireTalk on the Web



# FireTalk on the Web



## **Example from FireTalk**

**Firefighters (NETC, LCSH) TT: 01 Fire Department Management UF Fire fighters Firemen Fire-fighters (New York) BT Fire department personnel NT Firefighter I Women firefighters RT Fire officers Promotional examinations** Training **Figure 2** 

## FireTalk: FSI Thesaurus

- A Unique Subject Heading List Using FSI Local Terms, Supplemented by MeSH, LCSH & Local Terms from Other Libraries
- Conform More Closely to the Mapping Techniques
- Main Objective: Produce a Single Subject Authority List with an Indication of What the Equivalent Terms Are in the Other Vocabularies

## **Plans for Further Work**

- 1. Relate Class Numbers & Subject Headings
- Use Reporting Mechanism between FSI & the Editors of Other Lists to Reach Some Accommodations
- 3. Do Match Codes Research
- 4. Study Exceptions to the Mapping Rules
- 5. Study False Matches

 Provide Easy Tool for Cataloging Practices
 Improve Subject Access Vocabulary to Fire Science Materials, Looking for Synonyms, Spelling Variations, etc.
 Select Appropriate Terms, as New Resources are Being Cataloged & Fit These Terms into FireTalk

- Construct a Syndetic Structure for All Terms
- Develop an Authority/Verification System & a Search System that Provides Automatic Links between Old Access Terms & the Established Headings
- Show the Library Holdings on the FSI Library OPAC with Some Consistency in Subject Access, with Arrangements by Form of Material, Date, or Place, When Required

Generate Displays at the FSI Library OPAC that Links Corresponding LCSH, MeSH & Other Locally Developed Headings, thus Enhancing Retrieval of Relevant Bibliographic Citations & Facilitating Multiple Database Searching & Cataloging Practices

Help Add the FSI Library Collection to the Statewide On-line System by Joining Lincoln Trail Libraries System LSSAP -LINC with Acceptable Subject Headings to Facilitate Information Delivery & Equal Access for Every Firefighter & Interested Citizens in Illinois for the Outreach Program

## Acknowledgement

- The Illinois Fire Service Institute's Continual Support
- inFIRE Members' Generous Help
- 1999 LSTA Mini-Grant, Bring in an Expert, & 2000 LSTA Full Year Grant from the Illinois Secretary of State's Office & the Illinois State Library
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- Graduate Student, Ms. Yan Xu's Assistance