

Research, Development, and Evaluation of a FRBR-Based Catalog Prototype

Yin Zhang

School of Library and Information Science
Kent State University
yzhang4@kent.edu

Athena Salaba

School of Library and Information Science
Kent State University
asalaba@kent.edu

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Outline

- Background of the KSU FRBR project
- Research and development of a FRBR prototype catalog
- User evaluation of the FRBR prototype catalog
- Conclusion and next steps



Background

- FRBR offers great potential for libraries to develop catalogs and discovery tools that allow users to access bibliographic data in a more effective manner.
- There is a lack of both guidance in FRBR implementation and FRBR user research.
- The KSU FRBR project conducted a series of user studies as part of an IMLS-funded project concerning the development and research of FRBR-based systems.



Research and Development Process of a FRBR Prototype

Step 1. User evaluation of previous FRBR-based catalogs

Step 2. Data and FRBRization

Step 3. Initial FRBR-based displays

Step 4. User participatory design and evaluation



Step 1.

User evaluation of previous FRBR-based catalogs

- To examine and evaluate previous FRBR prototypes (as of 2007) from the end user's perspective
 - To understand users' experience with existing FRBR-based catalogs
 - To evaluate whether these systems support user tasks as defined in the FRBR model
 - To seek user input on which system features users find helpful when searching the catalogs and how the catalogs could be improved to facilitate user information seeking
- ➔ The results served as a basis for us to implement our own FRBR prototype catalog



Step 2. Data and FRBRization

- Data: LC records extracted from WorldCat at the end of December 2007
 - 13,624,251 bibliographic records
 - 7,283,635 authority records
 - Work level FRBRization
 - OCLC FRBR work-set algorithm with revisions
 - Expression level and manifestation level FRBRization
 - Our own algorithm
- ➔ The results serve as a basis for FRBR-based displays



Step 3. Initial FRBR-based displays

- Based on the results of the user evaluation of previous FRBR-based catalogs and the FRBRization outcome, the project team designed some layouts and illustrations for search and display interfaces:
 1. The display of works from an author search,
 2. The display of works from a subject search,
 3. The display of works from a title search,
 4. The display of expressions by language first and then by form,
 5. The display of expressions by form first and then by language, and
 6. The display of manifestation



Step 4.

User participatory design and evaluation (1)

- **Purpose:**

- Sought user input and feedback on some important interface design issues for the FRBR entities, such as work, expression, and manifestation.
- Specifically, the project team sought user input on which data elements and functions should be presented in these interfaces and how they should be presented. The results of this study helped the project team finalize the design of the FRBR prototype catalog.

- **Participants:**

- 25 participants were recruited from those who visited a local academic library.
- 2 (8%) were graduate students and 23 (92%) were undergraduates,
- 10 (40%) were male and 15 (60%) were female.



Step 4.

User participatory design and evaluation (2)

- **Data Collection Method and Procedures**

- A structured survey interview
- The participants were asked a series of questions regarding the prototype catalog design. They were prompted by FRBR search and display layouts and illustrations on paper.
- The interview process was audio-recorded and each interview took about an hour.
- The results of the findings and user input were used to refine FRBR displays in the finalized implementation of the FRBR prototype catalog



New FRBR Prototype Catalog

Kent State FRBR Catalog Prototype

Search results for author 'darw

Refine search

Limit to
 Currently available (1)
 All items (2)

Authors
 Adams, Charles Darwi... (1)
 Darwin, Charles, 180... (9)
 Darwin, Erasmus, 173... (2)
 Darwin, Francis, Sir... (2)
 Darwin, Tony. (1)
 Turner, Darwin T., 1... (1)

Adan

Kent State FRBR Catalog Prototype

Search results for title "red ba

Refine search

Limit to
 Currently available (1)
 All items (2)

Authors
 Crane, Stephen, (2)

Darw

Kent State FRBR Catalog Prototype

Search results for subject "algebra" » 576 results (What do these results mean?)

Choose an option Search catalog

Refine search

Limit to
 Currently available (1)
 All items (2)

Authors
 Abbott, Edwin Abbott... (1)
 Angel, Allen R., (1)
 Anton, Howard. (1)
 Aufmann, Richard N. ... (2)
 Barnett, Raymond A. ... (2)
 Bittinger, Marvin L.... (2)
 Blitzler, Robert. (1)
 Davies, Charles, (1)
 Euler, Leonhard, (1)
 Gustafson, R. David ... (4)
 Hart, William Le Roy... (1)
 Hecht, Eugene. (1)
 Hirsch, Lewis. (1)
 Kaufmann, Jerome E. ... (1)
 Khuwal,rizmil,... (1)
 Kolman, Bernard, (1)
 Larson, Ron, (4)
 Leff, Lawrence S. (1)
 Lial, Margaret L. (3)
 Martin-Gay, K. Elayn... (1)
 McKeague, Charles P.... (3)
 Nanne, J. Louis. (1)
 Rees, Paul Klein, (1)
 Sullivan, Michael, (3)
 Swokowski, Earl Will... (3)
 Waerden, B. L. van d... (1)

Algebra

(Related subjects)

Algebra & Trigonometry by Sullivan, Michael, 1942-
 12 results

- | | |
|--------------------------------|-----------------|
| Type of materials | Language |
| Book (11) | English (12) |
| Nonmusical sound recording (1) | |
| >>See all | |

Algebra And Trigonometry by Larson, Ron, 1941-
 13 results

- | | |
|--------------------------------|-----------------|
| Type of materials | Language |
| Book (11) | English (13) |
| Nonmusical sound recording (2) | |
| >>See all | |

Algebra And Trigonometry With Analytic Geometry by Swokowski, Earl William, 1926-
 12 results

- | | |
|--------------------------|-----------------|
| Type of materials | Language |
| Book (12) | English (12) |

Algebra For College Students by Gustafson, R. David 1936-
 10 results

- | | |
|--------------------------------|-----------------|
| Type of materials | Language |
| Book (9) | English (10) |
| Nonmusical sound recording (1) | |
| >>See all | |



User Evaluation of the FRBR Prototype

- User evaluation of the catalog
 - Understanding of FRBR-based displays
 - Ease of navigating through results
 - Success of FRBR-defined user tasks



Study Design

- Comparative approach: One collection, two catalogs
 - FRBR prototype catalog
 - Current catalog (Koha)
- Data collection methods
 - Observations, screen captures, and audio recordings
 - Structured interviews
- Participants
 - 34 academic library users
 - 4 graduate students
 - 30 undergraduate students
 - 15 male
 - 19 female



Study Design: Tasks

- Part 1: User interaction with common search options
 - Purpose: user interpretation and evaluation of search results displays and system features
 - Display of works from a title search
 - Display of works from an author search
 - Display of works from a subject search

- Part 2: FRBR-defined user tasks
 - Purpose: user performed find/identify/select work, expression, and manifestation tasks
 - Users are given a number of criteria
 - Users select their own search strategy

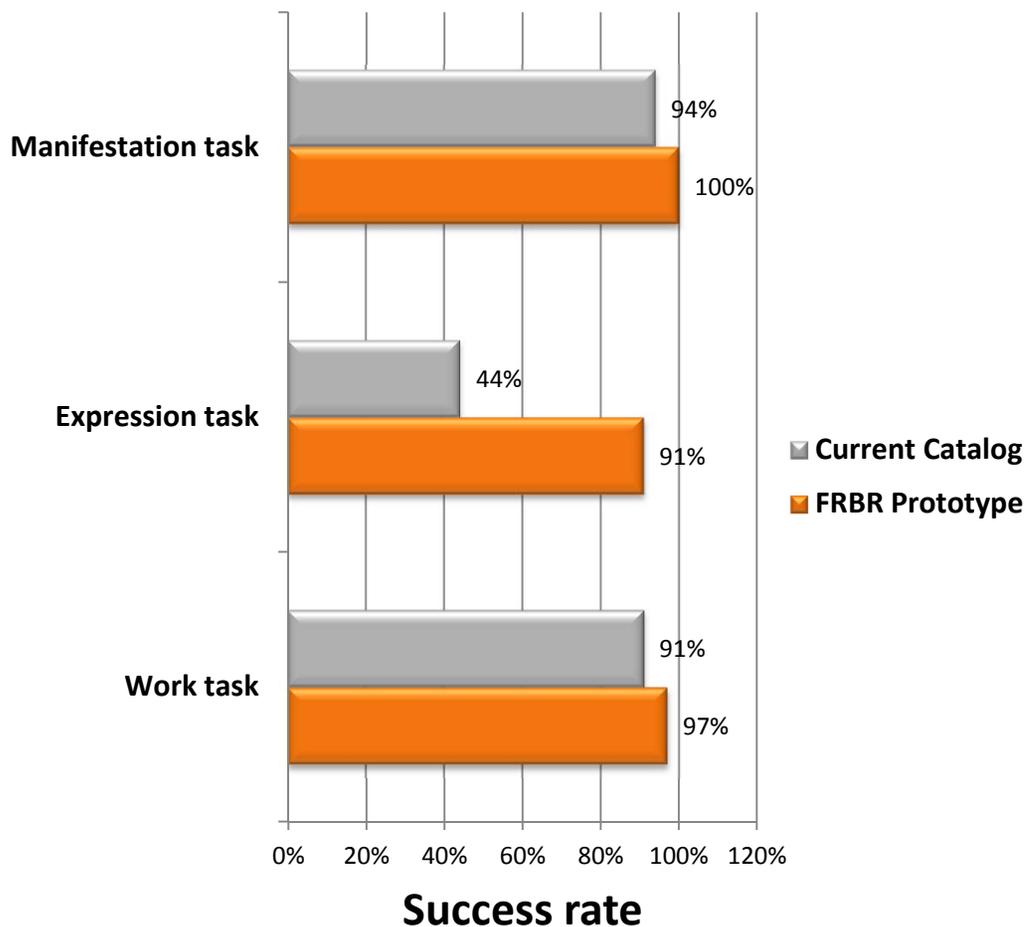


Major Findings (1): Catalog Preference

Overall or Scenarios	FRBR Prototype Catalog	Current Catalog	Either	Neither	Total
Overall	29 (85%)	2 (6%)	2 (6%)	1 (3%)	34 (100%)
For a specific language or type of materials	34 (100%)	-	-	-	34 (100%)
For a specific author	30 (88%)	-	4 (12%)	-	34 (100%)
For a specific title	28 (82%)	5 (15%)	1 (3%)	-	34 (100%)
For a specific title and publication info	27 (79%)	7 (21%)	-	-	34 (100%)
For entertainment	24 (71%)	4 (12%)	1 (3%)	5 (15%)	34 (100%)
For research	21 (62%)	11 (32%)	2 (6%)	-	34 (100%)
For a general topic without a specific title	20 (59%)	10 (29%)	3 (9%)	1 (3%)	34 (100%)



Major Findings (2): Success



Current catalog limitations:

- Only provides access to manifestations
- Did not offer grouping or faceting by language or format
- Language was assumed from title
- Format was assumed from physical description



Major Findings (3): Catalog Features

FRBR Prototype Features

- Helpful features
 - Grouping results by work and expression
 - 21 of 34 (65%) find groupings helpful
 - specified helpful groupings: by language (15%) and material type (18%)
 - Refining results: 8 of 34 (24%) find refining helpful
 - Order of results display: 5 (15%) find the alphabetical order helpful
 - Interface appearance: 8 of 34 (24%) find it helpful. Specifically:
 - all results in one page, grouped, larger font size, highlighting matched terms
- Features to be improved
 - More detail displayed before reaching manifestation level results (15%)
 - Grouping results, prefer individual manifestation level results (9%)
 - Listing a resource under each language if a multi-language resource (3%)



Major Findings (4): Display

Clustering individual search results into works, expressions under each work, and manifestations under each expression

- 30 of 34 (88%): made sense, helpful, easier to find sought resources
- 1 of 34 (3%): will need time to get used to the grouped display
- 4 of 34 (12%): did not understand the groupings

Navigating through the prototype catalog

- 31 of 34 (91%): made sense, easy to identify options, helped in performing searches
- 3 of 34 (9%) did not comment on navigation



Major Findings (5): Helpfulness

Helpful feature	#	%
Groupings	7	21%
Organization	4	12%
Faster	4	12%
Easy to use	4	12%
Easy to find known items	4	12%
Display fewer entries with adequate information	4	12%
Intuitive for novice users	3	9%
Other specified helpfulness:	5	15%
subject search		
grouping by language		
grouping by material type		
searching & refining by author		
unknown item search		

Not helpful:

- 1 (3%) found the prototype less helpful when looking for a title
- BUT helpful when looking for a specific topic



Conclusions

- Closing the research gap:
 - FRBR-based catalog user studies in sequence
 - Evaluation of different FRBR implementations
 - User perspective to inform future development
- Valuable user input during catalog design and implementation
- Users successfully complete tasks in FRBR-based catalogs
- Users understand the FRBR-based grouped displays of works, expressions and manifestations
- Displays are intuitive, easy to navigate, and helpful



Challenges and Future Steps

- Additional user research to evaluate other FRBR implementations
- Additional studies using a comparative approach
- Issues
 - FRBRization algorithms
 - Existing MARC records
 - Attributes and relationships
 - FRBR-based catalogs that effectively support user tasks
 - Displays
- RDA
- Linked data



Questions?

Thank You!