

IN Harmony Sheet Music: Final Report on the Group Walkthrough

Human Subjects Committee Approval,
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Introduction

Indiana University (IU), the Indiana State Library (ISL), the Indiana State Museum (ISM), and the Indiana Historical Society (IHS) have received a grant from the Institute of Museum and Library Services (IMLS) to provide electronic access to Indiana-related sheet music from each of the institutions' collections. Approximately 10,000 pieces of sheet music will be available online as a result of this grant activity. One of the primary goals for this project is to provide robust, consistent browse and search access across all participants' collections or within a particular collection, including the ability to refine or modify searches. Additionally, the site will contain digital surrogates of sheet music (as part of an integration with METS Navigator) and detailed records about the sheet music as well as functionality for users to email records and download versions of the sheet music.

Low-fidelity, paper prototypes of the IN Harmony website were created to begin testing the design and functionality with users. These prototypes were based on user needs identified from the findings of three usability reports (see *Query Logs Analysis Study* (final report dated May 10, 2005), *Card Sort and Task Scenario Study* (final report dated August 1, 2005) and the *Email Content Analysis Study* (final report dated August 15, 2005)).

Prototypes were tested with users using a group walkthrough process. This report outlines the overall objectives of the user study as well as the evaluation procedures used for the group walkthrough. The "Results" section of this report summarizes the participants' impressions of the IN Harmony prototypes, as well as suggestions for improvements. The report concludes with an overall summary and recommendations to inform the final design and functionality of the website.

Walkthrough Objectives

An evaluation of the IN Harmony website prototypes was conducted with representative users¹ to understand: (a) how users expect the website to function in terms of providing access to the data and (b) what type of content is expected and deemed useful. Specific areas of evaluation include: (1) overall organization of content, (2) the promotion of efficient browsing (including faceted browsing and result refinement), (3) the promotion of successful searching (including Boolean and refined search), (4) the provision of useful results and record displays (including access to digital surrogates of sheet music), (5) the intuitive process of creating and emailing a selections list, and (6) the provision of a session-based search history.

The paper prototypes adopt many known web design principles to facilitate navigation, browsing, searching, and other functionality mentioned above. Some design concepts from the Charles W. Cushman Photograph Collection were incorporated (especially faceted search results) and tested. Participants provided feedback on the prototypes, as well as examples of experiences with other online sheet music collections, such as the RISM Manuscript Index and Indiana University Sheet Music.

¹ Group walkthrough study received approval from the Human Subjects Committee (HSC). Related HSC documentation can be provided upon request.

Most attention and feedback was provided for the search and browse functions of the site, including the search refinement displayed on the results page. Other goals that guided the walkthrough evaluation were as follows:

- 1. Determine if the overall structure, and organization including navigation, terminology and content of the website is clear and adequate.**
- 2. Determine how users would conduct efficient browsing of over 10,000 pieces of sheet music from five different institutions, including:**
 - a. Within categories of year, title, and name
 - b. Within A-Z list displays, century and decade segments
 - c. With hyperlinks and text boxes for access
- 3. Determine means by which users can successfully search, including:**
 - a. Through the use of Boolean operations in keyword/simple search
 - b. Through filter aids in advanced search to limit results
 - c. Through understanding features of results display, including:
 - i. Search refinement or query expansion on the results page
 - ii. Through sorting results by various fields
 - d. Through exploration of record detail page, including:
 - i. The organization and display
 - ii. Ability to broaden search via hyperlinked fields
 - iii. Ability to link to related terms for other relevant information
 - e. Through access to a search history of searches conducted during the session
- 4. Determine how users would use and manipulate search results, including:**
 - a. Through sorting results by title or publication date
 - b. Through refining or broadening search results through filters/facets
- 5. Determine means by which users would access sheet music, including**
 - a. Emailing selected full/brief records to themselves
 - b. Downloading copies of sheet music

Participants

It is anticipated that the IN Harmony sheet music website will be used by teachers, scholars, musicians and the general public. This study targeted participants from Music, Ethnomusicology, Sociology, Anthropology, History, Art History, and Communications and Culture.

Test participants were recruited via the administrative contacts for the departments listed above. A few potential participants who had participated in previous IN Harmony usability studies were recruited directly via email by DLP staff. Participants with equal interest in musical and visual content (covers) were targeted for recruitment. They included undergraduate and graduate students and faculty with interests in the fields of fine arts and art history, history, and sociology,

as well as music and ethnomusicology. There were no criteria regarding participants' computer and Internet skills. All levels of abilities were welcomed.

The participants recruited for the group walkthrough included two graduate students in Ethnomusicology and one lecturer from Communications and Culture.² One Ethnomusicology student was also pursuing a degree in music librarianship at the School of Library and Information Science. The Ethnomusicology students had a wealth of experience with a range of online sheet music collections. The lecturer from Communications and Culture who was also on staff at Radio & Television Services, had a general interest in sheet music, especially cover art.

Methodology

The Walkthrough Technique

A group walkthrough is typically conducted in the early design stages or when an existing design needs to be entirely reconceived. The participants of a walkthrough may include representative users of the system, designers and human factor (HF) specialists.

Walkthroughs may be conducted with low-fidelity (paper) prototypes or high-fidelity (web page) prototypes. Typically, participants are asked to perform a series of tasks using the prototypes and are observed during this process. For the IN Harmony group walkthrough, instead of completing tasks, participants were asked questions relating to their general impressions and preferences on various screens, any expectations they had regarding functionality, and how they, as users, might approach using various functionality and features.

The group walkthrough combines a more formal usability lab testing approach with focus group techniques to reveal any significant problems in the early stages of development while the designers are still able to rid the prototype of major flaws.

Protocol Summary

The group walkthrough was conducted according to a written script to ensure that users were asked questions in keeping with the goals of the walkthrough and to keep the walkthrough on task. More importantly, the script is used to ensure continuity across tests when several walkthroughs are being conducted over a span of time.

Participants, first, completed consent forms upon arrival. Afterwards, background information about the IN Harmony project was provided by the facilitator and a packet of black and white prototypes was distributed to each participant. Questions were asked beginning with the home page and then moving through the site in a rather linear manner. However, at the beginning of the walkthrough participants asked many questions pertaining to features of later prototypes. When answers to these questions could be addressed later without confusing participants the

² Prior to the December walkthrough, feedback was also obtained from IN Harmony partners. However, their feedback is not incorporated in this report, except where noted.

script was followed. Occasionally, it was helpful to address the questions to provide meaning or background.

After the discussion was complete, participants were given a gift certificate and each one filled out an acknowledgement of gift form for reimbursement purposes.

Testing Environment

The group walkthrough was conducted in the LETRS conference room with three participants, a note taker and a facilitator. No audio or video recordings were created of this session. The entire evaluation, including the completion of forms and the discussion lasted approximately two hours—the time allotted for the testing.

Instruments used:

- Walkthrough evaluation script
- Consent form
- Prototype packets
- Reimbursement form

Results

Group Walkthrough Evaluation Highlights

The highlights below are broken down by the representative sections of the IN Harmony website prototype: Home, Browse, Search, Advanced Search, Search Results, Search History, and My Selections. Each section of highlights will include a summary of participants' feedback, specific comments and questions that were made, and an assessment of that feedback.

In general, the reaction to the prototypes was positive. Participants liked a variety of the features and did not have any major criticisms with the overall navigation, layout, functionality or proposed content. Few prototypes produced rigorous discussion except for the browse pages and the search results page.

Major themes discussed were:

- Browse vs. Search
 - A-Z anchor list or “go to” box?
 - Browse by Subject is important!
 - Browse by Name or Title may be less important
- Filtering to refine or broaden search results
 - Love/hate response to filtering and facets
 - Levels of control and customization

Home³

Participants had no strong reaction to the home page. Overall, the layout and navigation were what they expected. One person thought the browse section of the navigation was too strongly emphasized and that she would conduct a search before she browsed on the site. Another user thought that the composer's name should appear with the other sheet music information under "featured music". That same user asked what "My Selection" (the area where a user's brief/full records can be held and then emailed to the user during the session) meant. When asked to explain what he believed "My Selections" to be, his idea matched the intent of the section.

Additional comments:

- Where would "View Details" link take you?
- Where would "Browse: Name" take you? Just a list of composers?
- Would "featured sheet music" displayed on the home page change regularly?

Home--Assessment

No changes will be made to the home page.

Browse: Year

There was some reactions and feedback to the browse by year layout. Participants believed that the "uncertain" and "unknown" terms were confusing. The ethnomusicology students also believed that even if a date was unknown it could be estimated at least to a certain century or possibly even a particular decade. They believed that the "uncertain" category could be useful if the date of publication straddled a decade.

As the browsing functionality was discussed, participants voiced certain desires about organizing search/browse results by year. These comments are mentioned below.

- Want to be able to re-order results by date on results page
- Want to be able to see just a year of music in results and not have to scroll through a whole decade.

Browse: Year –Assessment

It should be further explored the best way to represent unknown and uncertain dates within the browse results. Participants would like the date to be categorized to the nearest estimated decade or century but would also like to be able to see in the record detail that the date is only an estimate and not exact. It may not be possible to represent imprecise dates differently than what has been prototyped due to metadata and cataloging standards for the project.

³ The home page evaluated was for the portal "IN Harmony" web site. During the Lilly Library partner walkthrough (October 12, 2006), the importance of having repository-only access to the collections was emphasized, especially for the Lilly, who relies on direct access for instructional purposes. This functionality of repository-level "home pages" along with the portal home page will be built into the IN Harmony web site, but will require additional user feedback.

Browse: Title

Three versions of browse by title were shown to participants, each a variation of common browse functions used for online resources. A screenshot of each prototype is listed below followed by participant comments.

IN Harmony Sheet Music

Overview | Project Info | Help

Search

Browse: Name | Title | Year | Subject

Search | Advanced Search | Search History | My Selections

Browse for in Title

Footer
DLP info
Contact Info

#1 Browse: Title

IN Harmony Sheet Music

Overview | Project Info | Help

Search

Browse: Name | Title | Year | Subject

Search | Advanced Search | Search History | My Selections

Browse for in Title

Browse results starting with Celtic in (Title)

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Can This Be Love? (3)	Captain of the Band (3)	Dear Old Indiana (3)
Can You Feel the Love Tonight? (12)	Capulets and Montagues (3)	Don't Forget Me Katie Dear (3)
Candle in the Wind (3)	Celtic Dance: piano solo (3)	Don't Worry (3)
Candy, Candy, Candy (9)	Childhood Happy Days (9)	Dream Time (9)
Candy Man, The (5)	Chinese Lantern March (5)	Dreamy Moon (5)
Can't Help Falling in Love (8)	Christmas Prayer (8)	Electric Signs (8)
Can't Let Go (1)	Christmas Prose (1)	Ellington Intermezzo (1)
Can't Stop Feeling (4)	Colorado Kate (4)	Ever Dreaming (4)
Can't Stop Thinking About Tomorrow (12)	Cottage of the Dear Ones Left...(12)	Every Hour (12)
Canteloupe Fields (7)	D.H. Baldwin & Co. Two Step (7)	Fiesta (7)
Cantankerous in the Morning (1)	Dandelion Clock (1)	Foolish (1)
Capricorn Sun (3)	Day in June (3)	For a Pioneer's Memorial (3)

<< Previous Next >>

Footer
DLP info
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#1 Browse: Title (Results)

Participants found the first title browse interface to be confusing⁴. They were not sure whether the “go to” box could handle keywords or if the word had to be the first word in the title (i.e. was it a search or browse?). The majority of the participants expected that there would be an A-Z anchor list that would allow the user to jump down to the proper place in the list.

Those participating were also asked if and how they might use the browse by title to locate sheet music to which they could not remember the title or only knew part of the chorus. Most participants claimed that they would use the basic search function in these cases. They said they might also browse by subject if they knew the sheet music had something to do with the “Danube” for example, or had the word “Danube” in it.

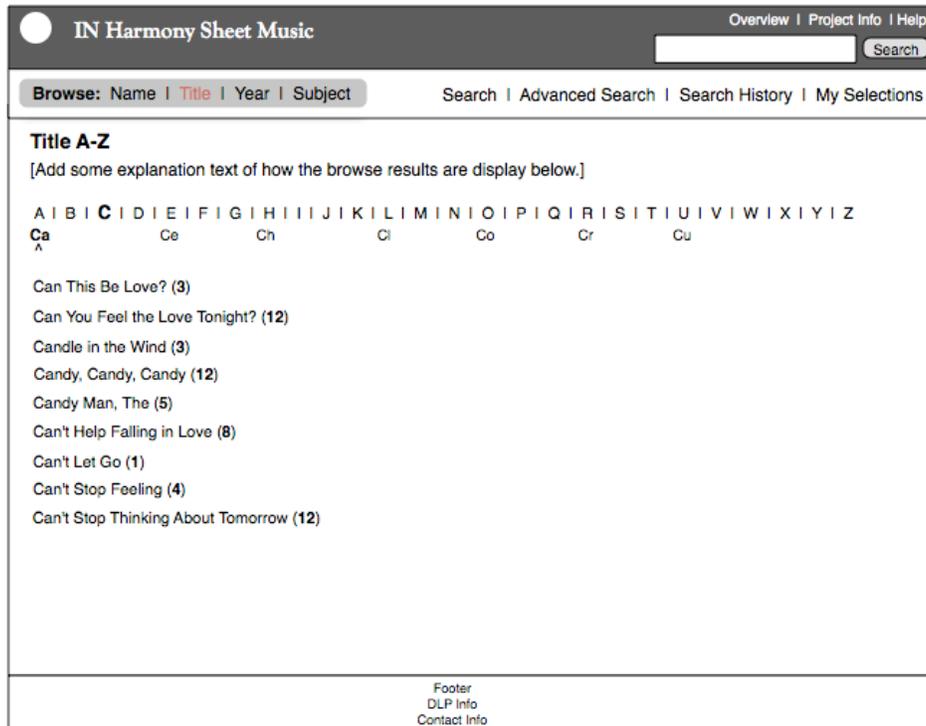
Within the title browse results page, participants did not expect that their result(s) would appear in the middle of the page, but anticipated the result to be the first in the list. They also felt the first result in their list should be emphasized with a background color instead of, or in addition to, the triangle bullet. Finally, one user believed that it should be much clearer that the results *start* with the word the user types into the “go to” box.

The general consensus after viewing this set of prototypes was (1) that the prototypes did not meet the participants’ expectations of browsing and (2) that the participants would not use browse by title very much, regardless of the functionality. They felt they would browse by subject and year the most and use search for anything else.

Additional comments:

- How case sensitive is the search box? How sensitive is it to punctuation?
- There should be a note that the user should not include initial articles (a, an, the) within the “search” box.

⁴ The walkthrough held with the Indianapolis and Bloomington partners revealed similar findings.



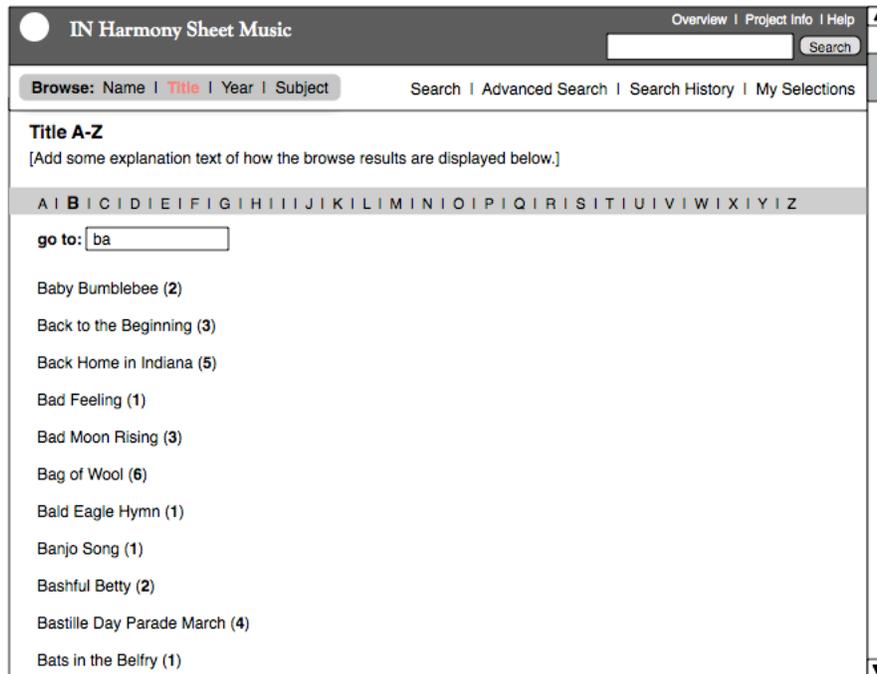
#2 Browse: Title

The second variation of browse by title (above) better met the participants' initial expectations. They felt that the A-Z links provided more a browsing experience than the "go to" box in the first prototype. One participant felt that this interface was "hard to misinterpret". Participants also thought this version would be a good interface for browsing by subject (if offered) because the list would readily expose what the subjects represented in the collection.

Criticisms of the interface fell around the 'secondary' list of links, such as "Ca", "Ce", "Ch", etc. beneath the letter in which the user is browsing. One user felt it was confusing to place the "Ca" beneath the letter "A" and so on. She felt that there might be a better way to present the secondary list.

Additional comments:

- If I was looking at a list of titles starting with "Ca" could I simply scroll down the page to get to titles starting with "Cl"?
- Do I have to scroll back to the top of the page and select "Cl" or will there be another way for me to jump to a different letter in the alphabet?



#3 Browse: Title

Participants also liked the third browse by title option (above), as it offered a “hybrid” approach—as one user called it—of the previous two browse by title options. Also, participants thought that this version diminished some confusing parts of the other two versions by (1) removing the secondary list of links (e.g. “Ca”, “Ce”, “Cl”) (version 2) and (2) removing the “Browse for” text box and dropdown menu of version one.

Still, users were unsure of what would happen as they typed into the “go to” box. They thought that, possibly, the selection of results would narrow the more they typed. However, they felt that the “go to” box would only be useful if they had a sense of what they were looking for. Thus, the box still seemed to offer more of a search function than a browse function. In general, most participants felt that they would use search for any item they had some information about. Browse would only be used to familiarize themselves with the collections.

Browse: Title—Assessment

Though participants were generally uninterested in browsing by title, the functionality should remain as one way by which a user can familiarize him/herself with the collection. A decision will need to be made as to whether the second or third browse option is the best route for this collection. Option #2 may require a better representation of the secondary anchor list to clarify to the user how s/he jumps to a section of a long list and how s/he gets back to the anchor menu. Option #3 would require clearer signals on how the user should use the “go to” box to move through the list.

Browse: Name

The next prototype that participants examined was the browse by name page. The version they were shown most closely resembles the #3 Browse by Title page (above). As was true with the browse by title, participants liked the A-Z anchor list. They also liked that the roles associated with a person were listed next to the name. As the prototype is currently, once a user clicks on

the name of the person they will receive results of sheet music pertaining to that person. However, participants felt that it was important to be able to narrow the results by allowing the user to click on the role, such as “composer” or “arranger” and be taken to a smaller results list of sheet music the person composed or a list of music the person arranged. One participant likened this functionality to IMDB (the Internet Movie Database) and its use of roles within biography pages.

Browse: Name—Assessment

Being able to select the role of a particular person to limit results to music composed or music arranged is functionality that can be incorporated into the faceted browsing on the search results page. That will allow for a more consistent treatment.

Browse: Subject

No prototypes have been created for displaying browse-able subject listings. However, during the study, participants mentioned several times **that they really wanted to be able to browse the collection by subject**. The ethnomusicology students, in particular, were adamant that they would mainly browse by subject and year but anything else they would locate via a search.

Browse: Cover Art

Though not in the initial functionality requirements, a prototype was created to explore if users might be interested in browsing the collections by cover art. The participants all liked the idea of being able to see the cover art while they were browsing but did not feel they would choose to browse by cover art. Instead, they mentioned that they may want to see the cover art while browsing other fields, such as title. Participants mentioned that being able to see cover art may peak their curiosity about a certain piece of sheet music or it may help them locate a piece of sheet music in which they are familiar with the cover art.

Additional comments:

- At least one participant mentioned that it would be preferable to be able to choose to see the cover art or not—an “On/Off” type of setting.

Browse: Cover Art—Assessment

Because of the richness of the cover art and the benefit it can have, especially to users interested in more than the musical aspects of the collection, cover art should be represented as part of the “browse: title” function and/or “browse: subject”, if subject is added as a field. Users should choose whether they wished to display cover art while browsing or to turn the display “off”.

Basic Search

Not much time was spent discussing the basic search feature. Participants found the page intuitive and liked the set of tips to help them understand what the search box was able to handle. They were pleased that Boolean searches could be performed. They also liked to know they could filter by results with images only even if they may not use it.

Additional comments:

- None of the participants noticed the other keyword search box located at the top of the page in the banner area.
- One participant felt that she would use the advanced search almost exclusively and did not tend to use the basic search.

Basic Search—Assessment

No changes will be made to the overall layout and functionality of the basic search. The search box in the web page banner will remain as it is a useful tool for the user to search no matter where they are on the site. Search tips will be reviewed for accuracy and pertinence to the collection.

Advanced Search

Participants were shown two variations of the advanced search both with the same features but different layouts. All participants preferred version 1 (the more standard version) because it was more intuitive and did not force the user to expand/collapse various menus in order to see/hide the choices. Overall, the participants were very impressed with the search field options and felt they would be helpful in their work. Users did comment that searching by a particular institution's collection would not be relevant to them.

There were some questions regarding the meaning of certain fields. For example, under Subject: Topical Subject (sheet music) one participant understood “sheet music” to refer only to lyrics. One participant found “Institution” unclear but acknowledged that once he looked at the dropdown menu he would understand what it meant. Lastly, participants were unsure what would be found within geographic topic or local topic.

Additional comments:

- Could get rid of “date” text box and simply have date range boxes to capture either one date or two dates.
- Wanted to be able to search by “place of publication”

Other advanced search functionality was removed before this phase of user testing. Filtering by digitized sheet music was moved to the basic search page. Additionally, controlling the way results were displayed is only controlled from the results page.

Advanced Search—Assessment

The fields for advanced search meet the needs of the participants. No fields need to be added or removed. Search tips will be reviewed to ensure they are relevant to the page and the collection. Items such as “geographic topic” may need to be explained in search tips or labels may need to be improved. Date and date range will both remain as ways of searching for dates because the two options will reduce thinking on the part of the user.

No Results

Participants found that the “no results” page very useful, as it provides alternative search options when their own search produces no results. One participant felt it would still be helpful to show the query that revealed no results so the user could determine if something was spelled wrong

and could be corrected. (The original query is listed at the top of the page but may require further distinction from other suggested queries.)

Additional comments:

- Search tip about date range should be more general, e.g. “Try broadening your date range.”
- “Some databases truncate automatically when searching(e.g. RISM manuscript index). That’s a nice feature.”

No Results—Assessment

All search tips will be reviewed to ensure they are relevant to the collection and the page. An effort will be made to distinguish the original query from suggested queries.

Search Results

The search results page received mixed reviews. Overall, participants liked the way the results display and had few questions or suggestions. They felt the default view of results should either be by publication date or by title but leaned toward publication date. The Ethnomusicology students also wanted to sort results by composer and publisher name (A-Z). All agreed that the default view of the thumbnail and record was the best, as long as they still had the option to view results without a thumbnail. Viewing records without thumbnails was important to one user because he was concerned about download time if he was using a slow Internet connection.

Additional comments:

- Swap ‘display’ information with ‘sort’ information on page
- Did not care if performer was presented in the brief record

The other part of the results page contains a faceted browsing section, which one user found to be “completely overwhelming” and said she would “never use it”. Another participant liked the options for refining or broadening a search without going back to the advanced search page.

Additional comments include:

- Did not want results to change on the fly as each item was added or removed. Want to be able to say when all changes take place with some sort of “start” button.
- Want to be able to select multiple items from one category, like “piano” AND “guitar”

Search Results—Assessment

Further examination will need to be done to determine other ways of sorting results (e.g. by composer’s or publisher’s name). Results will default to being displayed by publication date and the record default view will be thumbnail and record. The display and sort controls will be swapped so they are positioned more closely to the information that pertains to each. The faceted browse feature will remain as part of the interface, as it provides a powerful and convenient means for refining and broadening results. Additional features that were requested, such as selecting multiple items from one category, are contrary to the way a faceted search system works and will not be implemented. Some negative reaction to the functionality may be from testing the page

as a paper prototype where participants are forced to envision the way it may function but cannot actually observe it in action.

Full Record View

There were few comments or questions about the full record. Participants understood the meaning of the hyperlinked metadata as a means of executing a new search. They also felt comfortable with the meanings of labels for the various fields. They liked the option to print the sheet music and to save the record in order to email information to themselves. They also felt that highlighting “My Selections” within the navigation made it clear that they had selections chosen.

The full record is the page where METS Navigator page turner is launched to view the sheet music. Users found it clear to understand how to view the sheet music but did request that it be launched in a new window so they did not “lose the view of the record detail.”

(Note: Since the IN Harmony functional requirements were developed additional work has been done by the DLP regarding the integration of METS Navigator and various digital collections. Thus, the approach IN Harmony has currently created for dealing with multiple versions is to display the additional thumbnails of versions on the record detail page. If a user clicks on a version, METS Navigator will launch that version for the user to view.)

Additional comments:

- Like that user can view other copies of the sheet music
- Feel organization of the fields on the page can be improved, especially lowering the priority of “IN Harmony ID” and “Call number”.

Full Record—Assessment

The full record prototype will be reviewed and fields may be re-ordered to prominently display information that is most relevant to the users. Since IDs and call numbers are important locators of information, they will probably remain in a prominent place even though some users will not find them useful. Fields that are blank will not appear on the page. A link to the institution’s rights statement for their collection will also be added with other institutional information to the bottom of the page. A link to a general IN Harmony rights statement may also be added to the secondary navigation (in the banner above the search box).

My Selections

Little time was spent discussing the My Selections page. Participants liked the ability to save records and send them via email. As stated above, all participants felt that highlighting “My Selections” in the navigation was an adequate way of illustrating that selections had been chosen by the user. Participants did express disappointment that the save function did not extend past the session.

Additional comment:

- Define what “brief” and “full” record mean

My Selections—Assessment

My Selections will remain a sessions-based function since the cost and time of creating a system of user logins far exceeds the demand for the functionality. A privacy statement will need to be created to assure people that their email address and identity will not be misused. Finally, a “tip” will be added to the page explaining what brief and full records are to help users.

Search History

Participants spent little time discussing the search history page. All thought it was a nice feature that they would use and felt the information was clearly presented. Again, participants wanted searches to extend past the session.

Search History—Assessment

Like “My Selections”, “Search History” will remain a sessions-based function.

Recommendations

The following recommendations are a reflection of comments and suggestions participants provided while viewing the paper prototypes during the group walkthrough. These are mainly minor changes and additions and will not significantly impact the existing prototype.

HOME	
Recommendation	Priority
None	n/a

BROWSE: Year, Title, Name, Subject, Cover Art	
Recommendation	Priority
Year: Remove “Unknown” category from date page	High
Title: Use pure A-Z anchor list with secondary (Ca, Ce, Cl) anchor list (version #2)	High
Name: Add “role” as facet on results page	Medium
Subject: Add browse by subject	Medium
Cover art: Add means to view cover art while browsing titles	High

SEARCH: Basic, Advanced, and Search History	
Recommendation	Priority
Basic: Edit search tips to ensure accuracy and agreement with collection	High
Advanced: Edit search tips to ensure accuracy and agreement with collection	High
Advanced: Clarify search labels (e.g. “geographic” and “local” subject)	High

RESULTS: No Results, Summary and Record Detail	
Recommendation	Priority
No Results: Edit search tips to ensure accuracy and agreement with collection	High
No Results: Visually distinguish original query from suggested queries	Medium
Summary: Sort default= publication date	High
Summary: View default=thumbnail and record	High
Record Detail: Re-order way fields display with most relevant on top	Medium
Record Detail: Add link to institution's rights statement with other inst. info in record (Remove rights statement from box on detail page.)	High

MY SELECTIONS	
Recommendation	Priority
Add language to clarify meaning of "brief" and "full" statement	Medium
Create privacy statement information	Medium