

IN Harmony: Sheet Music from Indiana Card Sort and Task-Based Evaluation for Subject Terms

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. As a result, cataloging guidelines and tools for sheet music description will be developed to aide the project partners in a) cataloging sheet music not yet described in their respective collections; and b) map existing cataloging records to a format that will facilitate cross-collection searching.

Background

The card sort evaluation is part of a broader, second phase of usability studies that aim to answer the following questions:

- Do users really make distinctions between the generic category subject and sub-categories like genre/form/style, instrumentation, etc.?
- Are user approaches or query descriptors different depending on whether they are looking for sheet music cover art or musical content?
- How do users define sheet music?

Phase one of the usability studies involved in-depth analysis of query logs generated from the IU Sheet Music and UCLA Sheet Music Consortium websites. As a result, subject searches were identified and mapped to subject sub-categories¹. This study is designed to primarily answer the first question: do users really make distinctions between subject and subject sub-categories. By using queries derived from the query logs analysis study, we hope to answer that question by having representative users evaluate subject-related terminology.

Purpose of Study

In order to understand if users indeed make distinctions between various subject sub-categories, and if so, what those distinctions are, participants will be asked to group and categorize items. These categories will not only determine necessary metadata elements for cataloging sheet music, but may also provide useful browse categories for the collection website.

¹ For final report of the logs study, see:
<http://www.dlib.indiana.edu/projects/inharmony/projectDoc/usability/logs/index.shtml>

Another aspect of this study is to compare and map a user's natural language query with terms from various controlled vocabularies that may be integrated into the IN Harmony cataloging tool. Participants will be presented with task scenarios in order to illicit natural language and controlled search terms required to complete the tasks. Their assessment of the resulting terminology will help us make controlled vocabulary recommendations that are more in line with the user's natural language.

Both these activities will help us determine guidelines and recommendations for subject cataloging of sheet music. They will also inform searching and browsing requirements for the end-user IN Harmony website.

Participants

Participants recruited for this study must have experience using sheet music either for performance or scholarly reasons. Because we are equally interested in people who search for sheet music covers as well as content, we will recruit beyond the IU School of Music. Others in disciplines such as history (popular history), sociology and fine arts rely on sheet music, especially covers, for primary research. These departments will also be targeted for participants. Librarians, library assistants and archivists who manage sheet music collections will also be recruited. Lastly, we are also interested in how Bloomington area K-12 music teachers search and use sheet music in their classroom.

Eight participants, 2 with music backgrounds, 2 from non-music disciplines, 2 librarians and 2 K-12 music teachers, will be recruited through direct contact either by email or in-person (see Appendix A).

Participants will be compensated for their time with a \$10.00 gift certificate from a local bookstore. If participants decide after reviewing the consent form that they do not wish to participate in this study, they will not be awarded the gift certificate. However, participants that continue on, even if they leave part way, will receive compensation.

Participants will be able to discontinue their involvement or decline further participation at anytime with no penalty.

There are no known risks associated with this study².

Methodology: Data Gathering and Analysis

This study will rely on two data-gathering techniques: card sorting and task-based scenarios. Card sorting "is a user-centered, content-centric design method for increasing a system's findability. The process involves sorting a series of cards, each labeled with a piece of content or functionality, into groups that make sense to users or participants."³ Task scenarios simply

² Some of the language in this evaluation plan is included to conform with the IU Human Subjects process.

³ http://www.boxesandarrows.com/archives/card_sorting_a_definitive_guide.php

provide context based on actual information needs in order to facilitate the task completion process.⁴ The scenarios in this study will be used to create a search need that will in turn illicit search terms or queries from the participants.

The sessions will be held in a Wells Library (IUB Main Library) conference room, and should last no more than an hour.

Data Gathering

The study will entail the following:

Completion of forms: Consent Form and Background Questionnaire

The signed consent form (see Appendix B) will contain unique identification information such as name, but will be kept in a separate file. There will be no direct mapping from this form to the data collected in the questionnaires and during the card sort and task scenario activities. The background questionnaire (see Appendix C) is used to gather general information about the participant such as academic affiliations, computer experience, etc. Only a generic identifier such as P1, P2, etc. will be used for that form.

Completion of Card Sort Activity

Participants will sort approximately 50-60 cards into groups. Each card will contain a subject-related term or query. The flipside will contain a definition. They will categorize each group after sorting. The groupings will remain in tact for later analysis.

Completion of Task Scenarios

Participants will be presented with four task scenarios (see Appendix D), and asked to note the search terms they would use to complete the task. For every task scenario presented, participants will also select terms from three pre-defined lists or controlled vocabularies. Participants will then compare their self-assigned terms to the pre-defined selected terms to determine correlations, if any.

Debriefing and Compensation

After completion of the task scenarios, participants and the researcher are given an opportunity to ask questions for clarification, raise issues, etc. Participants will also be compensated for their time with a \$10.00 gift certificate to a local book store. They will need to complete a Gift Acknowledgement form (see Appendix E), which is required in order to facilitate reimbursement for the gift certificates purchased. This form contains contact information, but like the consent and contact forms, it will be filed separately.

The researcher and a note-taker will attend these sessions to facilitate the above activities and record participant comments, questions, etc. Notes will be recorded in logs (see Appendix F) marked with generic identifiers such as P1, P2, etc. A script (see Appendix G) will be used to make sure the evaluations are standardized across participants.

Documents such as questionnaires and session notes will refer to the participant using a generic identifier, e.g. P1. The consent and the gift acknowledgement forms will be saved in separate

⁴ <http://deyalexander.com/presentations/evaluation-studio/tasks.html>

files, and will not be mapped to the generic identifiers. The gift acknowledgement forms will be used only to facilitate reimbursement of the monies used to purchase the gifts.

All materials will be kept in restricted access in the Digital Library Program offices and will be made available only to the researchers of this study. Materials will be destroyed at the time of the scheduled completion of the IN Harmony website, September 2008.

Data Analysis

Microsoft's Excel spreadsheet program will be primarily used for analysis. Data can be easily sorted, coded and displayed in various ways including graphical representations.

General goals for data analysis have been identified (see list below). Other goals and criteria may surface upon closer inspection of the processed data:

Card Sort Activity

- Determine if and how actual participants differentiate types of "subject" queries
 - What categories are identified by participants? Do they overlap across participants?
 - In which user-identified categories⁵ do the terms appear? How often do terms appear in any given category?
 - How many unique terms appear within a given category⁶?

Task Scenario Activity

- Determine overlap, if any, between the participants natural, self-assigned search terms and terms selected from various controlled lists
- Determine number of times lead-in terms were selected as search terms

In the final report, findings will be mostly presented in terms of aggregated results; however, individual responses and quotations may be described. When this is the case, participants will be referenced by their generic identifier, e.g. "P1 said such and such". Quotations, responses or observations will only be noted for emphasis to support the aggregated data findings.

⁵ This assumes that assigned categories will overlap to some degree across participants

⁶ Ditto

Appendix A: Email Recruitment Message

Introducing *IN Harmony: Sheet Music from Indiana*

The Digital Library Program recently received a grant to digitize over 10,000 pieces of Indiana-related sheet music from various state institutions for online access. We are in the early design stages and would benefit from your feedback as potential users of this or similar sheet music collections. To learn more about the project, visit:
<http://www.dlib.indiana.edu/projects/inharmony/>.

Call for volunteers

We are currently investigating how users conduct subject-related searches of sheet music so that we can ensure optimal online access. The findings from this study will inform the design of cataloging guidelines and tools, and ultimately the browse and search features of the *IN Harmony* collection website.

If you **use sheet music for teaching, research or performance** purposes and are interested in participating in the design process, we would benefit greatly from your help. In return, we will compensate your time with a **\$10.00 gift certificate** to a local bookstore.

What, when and where?

We are holding individual usability sessions with a total of 12 participants the week of **Monday, June 20th**. The sessions are scheduled to **last no more than an hour**, and will be held in a conference room in the Wells Library (formerly known as the Main Library) on the IU Bloomington campus.

The usability session entails: 1) completion of a brief background questionnaire; 2) card sort activity which requires grouping and categorizing of 50-60 items; 3) task scenario activity which entails defining and selecting search terms in response to four task scenarios; and 4) time for final questions and passing of gifts for your participation. We will note your comments, questions raised, etc. during the session. All information recorded is done so anonymously and will be kept confidential.

If you are interested in participating, please send me (mdalmau@indiana.edu) **available times** during the week of **Monday, June 20th**. Please **respond as soon** as you can with **multiple time options** so we can schedule the session accordingly.

Thanks!

Your participation will benefit all users of the *IN Harmony: Sheet Music from Indiana* website.

Thank you for your time,

Michelle Dalmau (mdalmau@indiana.edu, 855-1261)

Appendix B: Consent Form

Indiana University – Bloomington Informed Consent Statement IN Harmony: Sheet Music from Indiana – Card Sort and Task-Based Evaluation for Subject Terms

You are invited to participate in a research study. The purpose of this study is to learn how you search for sheet music.

Information

The Digital Library Program recently received a grant to digitize over 10,000 pieces of Indiana-related sheet music from various state institutions for online access. We are in the early design stages and would benefit from your feedback as potential users of this or similar sheet music collections.

If you chose to participate, you will complete a card sort and task scenario activity that will help us understand how you search for sheet music. The card sort activity entails the grouping and categorization of 50-60 items, and the task scenario entails assigning and selecting search terms in response to four task scenarios. You will also be asked to complete a short background questionnaire.

The session will last no more than 1 hour. The facilitator and a note-taker will be present during the session. While you are completing the activities, you will be encouraged to talk through your thoughts and your actions as you complete the activities. You are also encouraged to ask questions at any time.

The questionnaire and session notes are anonymous; personal identification information, such as your name, will not be referenced on these documents. The questionnaire and sessions notes will only be seen by the researchers and will be used strictly for the development of the *IN Harmony* cataloging tool and website.

Risks

There are no known risks associated with this kind of study. However, at any time, you are free to take a break during the session.

Benefits

Your participation will inform the design of the *IN Harmony* website, and in turn, will benefit all future users of this online sheet music collection. In addition, the findings from this study may assist other digital library programs that are designing online sheet music collections.

Confidentiality

All the data collected will be done so in an anonymous fashion. The questionnaire you will

Initials: _____

complete will be identified with a generic identifier, e.g. P1, not your name or any other unique identifier such as Social Security Number.

The session notes will not refer to you by name or by any other identifying characteristic, but they will contain your responses, comments, suggestions and noted observations that arise as you complete the activities. All the data collected will only be reviewed by the researchers of this study. The data, including the questionnaires and session notes, will be kept in restricted access until completion of the *IN Harmony* project in September 2008, at which time they will be destroyed.

Compensation

You will receive a gift certificate to a local bookstore worth \$10.00 for participating in this study. If you chose to forego participation after reading this consent form, you will not be compensated.

Contact

If you have questions at any time about this study or the procedures, feel free to ask. You may also contact the researcher, Michelle Dalmau, at the Digital Library Program, Indiana University-Wells Library, 1320 East 10th Street, Room E-170, Bloomington, Indiana 47405, 812-855-1261 and mdalmau@indiana.edu.

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the office for the Indiana University Bloomington Human Subjects Committee, Carmichael Center L03, 530 E. Kirkwood Ave., Bloomington, IN 47408, 812/855-3067, by e-mail at iub_hsc@indiana.edu.

Participation

Your participation in this study is voluntary; you may refuse to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

Consent

I have read this form and received a copy of it. I have had all my questions answered to my satisfaction. I agree to take part in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Last revised: [date]

Appendix C: Background Questionnaire

**Participant Background Information for IN Harmony: Sheet Music from Indiana –
Card Sort and Task-Based Evaluation for Subject Terms**

1. IU Status: Faculty Graduate Student Librarian Staff Alumnus Non-IU
 - a. If Non-IU, please specify: _____
 - b. Area(s) of study or expertise: _____

2. What type of computer do you use? (circle all that apply)
 - a. at home: PC MAC
 - b. at work: PC MAC

3. About how many hours a week do you spend online (WWW, email, etc)? _____

4. Which browser(s) do you most commonly use? (e.g. IE 6.0, NS 4.7, Firefox, Safari)

5. Please indicate with an “x” how frequently you use the following sheet music collections:

Indiana University Sheet Music Collection

Not at all All the time

Sheet Music Consortium

Not at all All the time

Library of Congress Sheet Music Collections (any)

Not at all All the time

Duke’s Historic American Sheet Music

Not at all All the time

Johns Hopkins’ Lester S. Levy Sheet Music Collection

Not at all All the time

- a. List other sheet music resources you use:

6. Describe why and how you typically use sheet music in your teaching, research or performance.

7. Are you more interested in sheet music cover art or in the musical content? Please explain under which circumstances you would search for either cover art or content.

a. How do you search for cover art (e.g. list example search terms or summarize searching style/approach)?

b. How do you search for musical content (e.g. list example search terms or summarize searching style/approach)?

8. How do you define “sheet music”?

Thank you for completing this questionnaire.

Appendix D: Task Scenarios

1. You recently heard and enjoyed several ragtime and jazz tunes. You are interested in finding sheet music for ragtime and jazz compositions to play with your friends. Assuming you have access to a sheet music database that contains online versions of print music, which search terms would you use to find what you are looking for?
2. You are helping a friend select music for her wedding ceremony. Assuming you have access to a sheet music database that contains online versions of print music, which search terms would you use to find what you are looking for?
3. You and your friend have compiled a list of various tunes appropriate for her wedding, but you need to narrow it down. Your friend is particularly interested in organ or piano music. Assuming you have access to a sheet music database that contains online versions of print music, which search terms would you use to find what you are looking for?
4. You are conducting research related to African-American stereotypes and popular music. You are interested in the depiction of African Americans on vaudevillian sheet music covers. Assuming you have access to a sheet music database that contains online versions of print music, which search terms would you use to find what you are looking for?

Appendix E : Gift Acknowledgment Form

**Gift Acknowledgment Form for IN Harmony: Sheet Music from Indiana –
Card Sort and Task-Based Evaluation for Subject Terms**

By signing below, I certify that I participated in a usability evaluation for the *IN Harmony: Sheet Music from Indiana* project sponsored by the Indiana University Digital Library Program and received a gift certificate in the amount of \$10.00 in exchange for my participation.

Signature: _____

Print name: _____

Date: _____

Email: _____

Appendix F : Obeservation Log

Evaluator : _____

Participant # : _____

Actions Taken	Obersvations : Comments, Questions, Gestures

Appendix G : Script

[Introductions : Orientation (bathrooms, cafeteria, etc.)]

[Review of Consent Form : Questions ?]

[Overview of IN Harmony Project]

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.

[Overview of Activities]

You will complete a brief background questionnaire and two activities: a card sort and task scenario. While completing the activities, I will encourage you to talk-aloud. We are interested to know what you are thinking as you work through the tasks. You can ask me questions at any time. [Note taker's name] will be taking notes. You are free to look at [his/her] notes after each activity.

[Administer Background Questionnaire]

Please take a moment to complete a brief background questionnaire. If you are unsure about any of the questions, feel free to ask.

[Administer Card Sort Activity / Debrief]

You will sort approximately 50-60 cards into groups. Each card will contain a subject-related term or query. The flipside will contain a definition in case you need clarification. After you sort the cards, you will label or categorize each group. Use one of these blank index cards to create labels/categories for your piles.

You can create a "don't know" pile if you are unable to group certain piles. We can review the items in that pile towards the end of this activity.

[Administer Task Scenario Activity / Debrief]

You will provide search terms for four task scenarios. I will show you one scenario at a time. For each scenario, you will list your own search terms and then select search terms from several lists. After each scenario, we will compare your search terms to the ones selected.

[Wrap up: Final Questions/Comments, Gift Disbursement, Complete Gift Acknowledgment Form]