

# Usability and linked data article/sources review

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## Questions asked:

What existing work on library catalog discovery (including but not limited to Blacklight) can we review to better understand what catalog users want to do with the catalog?

What existing work on discovery and linked data systems can yield insight into search with linked data?

## High level takeaways:

- Information tasks can be categorized into targeted and known-item search as well as exploratory. With exploratory tasks, formulating what is to be searched can be difficult since the user may not have enough information about the search space itself.
- Earlier library interface design work as well as current review highlights the usefulness of facets as a way to browse the search space. (Trapido, Marie, Johnston et al.). That said, improvement is still possible as users may enter queries that could not intersect well with facets or not realize a query may be better suited as a facet.
- Desired features include fault-tolerant systems that provide support for different kinds of information gathering tasks: known-item and targeted search as well as browse and exploration. (Trapido)
- Search expectations and behavior are influenced by what users see with Google and search engine behaviors to which they have become accustomed: search as primary access point, most relevant results on first page, more comprehensive search of content itself. (Trapido, Pekala 2017). The distinction between sources of information (i.e. between the catalog and other sources such as articles) may not always be clear.
- The mismatch between vocabularies and taxonomies used to generate catalog search and what users may type in means users don't get the most relevant or expected results. (Trapido)
- [Schema.org](#) inclusion may help in increasing Google search result ranking as well as referrals to items: (context = DigitalGeorgetown Collections, Pekala 2018)
- Various linked data browsers and interfaces are mentioned (e.g. in Cervane et al.) but it is hard to consistently find functional URLs or understand whether the project existed beyond prototype stage. These interfaces tend to lend themselves to more exploratory search tasks rather than specific queries, although query interfaces do exist (Thakker et al., Marie). With queries, the issue is navigating the gap between semantic queries and natural language or visual interaction paradigms. (Hasnain et al.)

## Specific items of interest

- The Primo evaluation looked at "Did you mean" suggestions, showing low usage in general, lower usage than facets, but with open-ended searches seeing higher percentages than known-item tasks. As we consider suggestions and recommendations, the type of task which can be supported by this feature should be kept in mind. (Hanrath and Kottman 2015)
- Google has a "Talk to Books" semantic search feature which allows plain-English questions to discover relevant information from 100,000 books. This work is defined (with link to technology) in an arXiv paper at <https://arxiv.org/abs/1803.11175> (kurzweil blog).
- Marie's dissertation explores linked data exploratory search techniques including facets, set-based exploration, and recommendations based on "spreading activation" (taking a model of how memory operates and using that to find related concepts to what is being queried) as well as the design of a system that integrates data from SPARQL query endpoints (specifically DBPedia) and provides recommendations for additional topics for search.

## Resources reviewed/referenced (to be alphabetized later):

- Library discovery: interface design and search
  - Bossaller, J., & Moulaison Sandy, H. (2017). Documenting the Conversation: A Systematic Review of Library Discovery Layers. College & Research Libraries, 78(5), 602. doi:<https://doi.org/10.5860/crl.78.5.602>
  - Trapido, Irina. (2016). Library Discovery Products: Discovering User Expectations through Failure Analysis. INFORMATION TECHNOLOGY AND LIBRARIES. <https://ejournals.bc.edu/ojs/index.php/ital/article/view/9190/pdf>
  - Pekala, Shayna. (2017). Privacy and User Experience in 21st Century Library Discovery. INFORMATION TECHNOLOGY AND LIBRARIES. <https://ejournals.bc.edu/ojs/index.php/ital/article/view/9817/pdf>
  - Nicole Johnston, Alicia Salaz, and Rob O'Connell (2013). Determining Usability of VuFind for Users in the United Arab Emirates. <https://journal.code4lib.org/articles/7880>
  - Jody Condit Fagan, Meris A. Mandernach, Carl S. Nelson, Jonathan R. Paulo, Grover Saunders. (2012). Usability Test Results for a Discovery Tool in an Academic Library. <https://doi.org/10.6017/ital.v31i1.1855>
  - Scott Hanrath & Miloche Kottman (2015). Use and Usability of a Discovery Tool in an Academic Library, Journal of Web Librarianship, 9: 1, 1-21, DOI: [10.1080/19322909.2014.983259](https://doi.org/10.1080/19322909.2014.983259)
- Semantics and linked data: Integration and interface design
  - Pekala, Shayna. (2018). Microdata in the IR: A Low-Barrier Approach to Enhancing Discovery of Institutional Repository Materials in Google. code4Lib journal Issue 39. <https://journal.code4lib.org/articles/13191>
  - Lukas Klic, Matt Miller, Jonathan K. Nelson, Cristina Pattuelli, and Alexandra Provo. (2017). The Drawings of the Florentine Painters: From Print Catalog to Linked Open Data. code4Lib journal Issue 38.
  - Thakker D, Yang-Turner F and Despotakis D (2016). User Interaction with Linked Data: An Exploratory Search Approach. International Journal of Distributed Systems and Technologies. 7(1): 79-91. <http://hdl.handle.net/10454/10874>
  - [https://aran.library.nuigalway.ie/xmlui/bitstream/handle/10379/4845/Linked\\_Biomedical\\_Dataspace\\_-\\_Lessons\\_Learned\\_integrating\\_Data\\_for\\_Drug\\_Discovery\\_\(Final\).pdf](https://aran.library.nuigalway.ie/xmlui/bitstream/handle/10379/4845/Linked_Biomedical_Dataspace_-_Lessons_Learned_integrating_Data_for_Drug_Discovery_(Final).pdf)
  - Nicolas Marie. Linked data based exploratory search. Other [cs.OH]. Université Nice Sophia Antipolis, 2014. English. [NNT: 2014NICE4129](https://nnt.bibl.uzh.ch/2014NICE4129).
  - Hasnain, Ali; Kamdar, Maulik; Deus, Helena; Mehdi, Muntazir; Decker, Stefan (2014). Linked Biomedical Dataspace: Lessons Learned integrating Data for Drug Discovery. (2014). <http://hdl.handle.net/10379/4845>
  - H. Frank Cervone, Uni. of Illinois, USA; Alenka Kavcic-Colic, Nat. & Uni. Lib., Slovenia; Lars G. Svensson, Dt. Nationalbib., Frankfurt. (2015). Linked Data and User Interaction.

- Potential machine-learning/nlp approaches
  - Suominen, Osmo. (2018). Annif: leveraging bibliographic metadata for automated subject indexing and classification. [http://swib.org/swib18/slides/2\\_suominen\\_annif.pdf](http://swib.org/swib18/slides/2_suominen_annif.pdf)
  - "Google announces new 'Talk to Books' semantic-search feature". 2018. Kurzweil accelerating intelligence digest. <http://www.kurzweilai.net/google-announces-new-talk-to-books-semantic-search-feature>