Search Engine Optimization for Libraries

"We cannot call a digital-library or electronic publishing system a success if we cannot measure and interpret its use."

- Peterson Bishop 1998

Research Team

❖ **Scott Young**
Digital Initiatives Librarian at Montana State University

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Head of Library Informatics & Computing at Montana State University Library

❖ **Patrick OBrien**
Semantic Web Research Director at Montana State University Library

❖ **Kenning Arlitsch**
Dean of the Library at Montana State University. His book, co-authored with Patrick OBrien, is titled Improving the Visibility and Use of Digital Repositories through SEO, and was published in February 2013.

"Getting Found: Search Engine Optimization
for Digital Repositories"

- IMLS 3 Year Research Grant

Agenda - Day 4

❖ **Semantic Web SEO**

- ➢ Using Semantic Web Practices for SEO
- ➢ Web Development Practices and SEO

❖ **Social Media Optimization (SMO)**

❖ **Resources**

❖ **Questions**

Homework - Day 2

Institutional Setup & Identity

https://docs.google.
com/document/d/1HWVOkPn9UJXLeY3CV14cEPQKQtvgh6y
A6T6uXK6-iAw/edit

SEO Course Moodle instance

http://www.classes.ala.org/course/view.php?id=537

Homework - Day 3

Semantically Clarify Your Library & Define Your Site Index

https://docs.google.com/document/d/1wJqe5h6aS-Fc4KGBOaJSTpcMw3_GvjncitjujNFEgQ8/edit?usp=sharing

SEO Course Moodle instance

http://www.classes.ala.org/course/view.php?id=537

Recommendations & Priorities

1. Institutionalize SEO
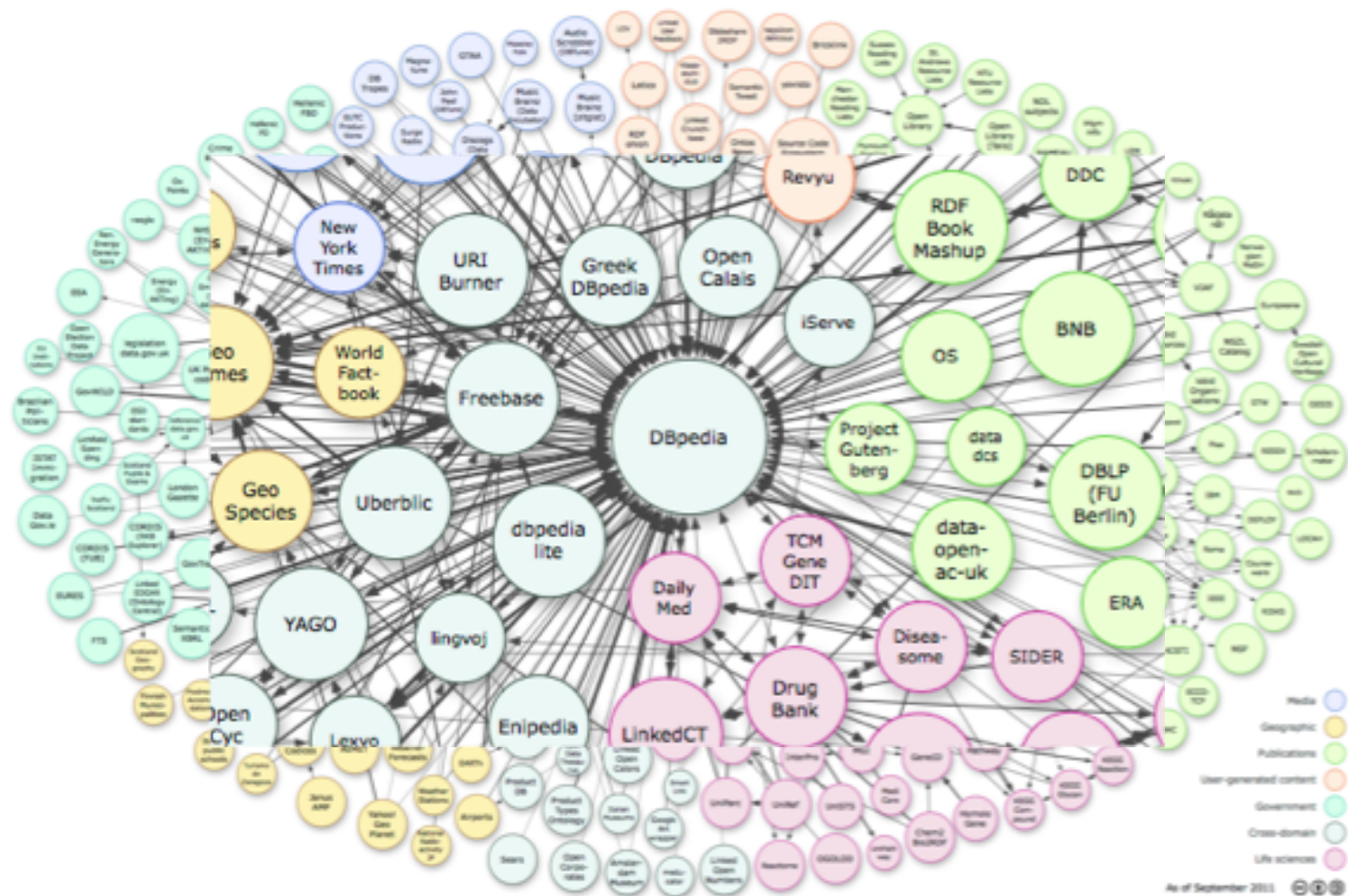   - Strategic Plan
   - Accurate Measurement Tools
2. Traditional SEO
   - Get Indexed = Index Ratio
   - Get Visible = Search Engine Results Page (SERP)
3. Semantic SEO
   - Get Relevant = Click Through Ratios (CTR)
   - Metadata
   - Linked Open Data (LOD)
   - Schema.org

Linked Open Data cloud diagram

What is Linked Open Data?

- Practice of ==publishing structured, machine actionable data== with an open license for sharing and reuse.

Why use Linked Open Data?

- Source for disambiguation
- Provides machine definition of entity (a person, place, thing, subject, etc.) ==using a unique identifier== (e.g., URL)
- Enables understanding vs. indexing of data

DBpedia

A library (from French "librairie"; Latin "liber" = book) is an organized collection of information resources made accessible to a defined community for reference or borrowing. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both.

Property	Value
dbpedia-owl:abstract	• A library (from French "librairie"; Latin "liber" = book) is an organized collection of information resources made accessible to a defined community for reference or borrowing. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both. A library's collection can include books, periodicals, newspapers, manuscripts, films, maps, prints, documents, microform, CDs, cassettes, videotapes, DVDs, Blu-ray Discs, e-books, audiobooks, databases, and other formats. Libraries range in size from a few shelves of books to several million items. In Latin and Greek, the idea of bookcase is represented by Bibliotheca and Bibliothēkē : derivatives of these mean library in many modern languages, e.g. French bibliothèque. The first libraries consisted of archives of the earliest form of writing - the clay tablets in cuneiform script discovered in Sumer, some dating back to 2600 BC. These written archives mark the end of prehistory and the start of history. The earliest discovered private archives were kept at Ugarit. There is also evidence of libraries at Nippur about 1900 BC and at Nineveh about 700 BC showing a library classification system. Private or personal libraries made up of written books (as opposed to the state or institutional records kept in archives) appeared in classical Greece in the 5th century BC. In the 6th century, at the very close of the Classical period, the great libraries of the Mediterranean world remained those of Constantinople and Alexandria. From the 15th century in central and northern Italy, libraries of humanists and their enlightened patrons provided a nucleus around which an "academy" of scholars congregated in each Italian city of consequence. Tianyi Chamber, founded in 1561 by Fan Qin during the Ming Dynasty, is the oldest existing library in China. In its heyday it boasted a collection of 70,000 volumes of antique books. The first library classification system was set up during the Han Dynasty. In North America, it is believed that personal collections of books were brought over to the continent by French settlers in the 16th century. The oldest non-personal library on the North American continent was founded at The Jesuit College in Quebec City in 1635. The first textbook on library science was published 1808 by Martin Schrettinger. A library is organized for use and maintained by a public body, an institution, a corporation, or a private individual. Public and institutional collections and services may be intended for use by people who choose not to — or cannot afford to — purchase an extensive collection themselves, who need material no individual can reasonably be expected to have, or who require professional assistance with their research. In addition to providing materials, libraries also provide the services of librarians who are experts at finding and organizing information and at interpreting information needs. Libraries often provide quiet areas for studying, and they also often offer common areas to facilitate group study and collaboration. Libraries often provide public facilities for access to their electronic resources and the Internet. Modern libraries are increasingly being redefined as places to get unrestricted access to information in many formats and from many sources. They are extending services beyond the physical walls of a building, by providing material accessible by electronic means, and by providing the assistance of librarians in navigating and analyzing very large amounts of information with a variety of digital tools.
dbpedia-owl:thumbnail	• http://upload.wikimedia.org/wikipedia/commons/thumb/2/2b/Melk_-_Abbey_-_Library.jpg/200px-Melk_-_Abbey_-_Library.jpg
dbpedia-owl:wikiPageExternalLink	• http://www.gutenberg.org/etext/15327 • http://www.ibiblio.org/librariesfaq/ • http://www.hss.ed.ac.uk/chb/ • http://www.lib-web.org/
dbpedia-owl:wikiPageID	• 17727 (xsd:integer)

http://dbpedia.org/page/Library

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Semantic Data Sources

- Topic Identification
  - [Freebase](#)
  - [DBpedia](#)
  - [Library of Congress Linked Data Service](#)
- Identity Disambiguation
  - [Orcid](#)
  - [VIAF](#)

Design Expectations for LOD

1. Use URIs as names for things
2. Use HTTP URIs so that people can look up those names.
3. When someone looks up a URI, provide useful information, using the standards (RDF*, SPARQL)
4. Include links to other URIs so that they can discover more things.

                            - Tim Berners Lee

Expressing and Encoding LOD

The data model of RDF is based on the idea of a triple.

A triple is a simple statement with three distinct parts:

1. a subject
2. a predicate
3. an object

	A	B	C	D	E	F
1	Title	Author	Publisher	OCLC #	ISBN	Notes
2	This house of sky : landscapes of a Western mind	Ivan Doig	New York: Harcourt Brace Jovanovich, 1992.	25629631	0151900558	
3	To skin a cat : stories	Thomas McGuane	New York: Dutton/S. Lawrence, 1987.	15549047	0394755219	
4	Young men & fire	Norman Maclean	Chicago : University of Chicago Press, 1992.	283736539	0226500624	
5	A river runs through it, and other stories	Norman Maclean	Chicago: University of Chicago Press, 1976.	442266245	0671776975	Also a film version from Robert Redford http://en.wikipedia.org
6	The horse whisperer	Nicholas Evans	New York: Delacorte Press, 1995.	35722048	0440222656	
7	Hiking Yellowstone National Park	Bill Schneider	Helena, Mont: Falcon Press, 2003.	52500539	0762725397	2nd edition (Hiking Guide Series)

#5 "has author" Norman Maclean

(subject)　　　(predicate)　　　　　(object)

Design Expectations for LOD

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- Tim Berners Lee

http://www.w3.org/DesignIssues/LinkedData.html

Expressing and Encoding LOD

Resource Description Framework (RDF)

A structured data format for expressing relationships (descriptions) between things (resources).

http://www.xml.com/pub/a/2001/01/24/rdf.html

Expressing and Encoding LOD

The data model of RDF is based on the idea of a triple.

A triple is a simple statement with three distinct parts:
1. a subject
2. a predicate
3. an object

1. Use URIs as names for things

http://www.worldcat.org/oclc/1733412 (subject)

http://purl.org/dc/terms/creator (predicate)

http://dbpedia.org/page/Norman_Maclean (object)

```xml
<?xml version="1.0"?>
<!DOCTYPE rdf:RDF PUBLIC "-//DUBLIN CORE//DCMES DTD
  2002/07/31//EN"
"http://dublincore.org/documents/2002/07/31/dcmes-xml/dcmes-
  xml-dtd.dtd">
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
     xmlns:dc ="http://purl.org/dc/elements/1.1/">
<rdf:Description rdf:about="http://www.worldcat.org/oclc/1733412">
 <dc:creator rdf:resource="http://dbpedia.
  org/page/Norman_Maclean"/>
 <dc:identifier>ISBN 0671776975</dc:identifier>
</rdf:Description>
</rdf:RDF>
```

5 Star Linked Open Data

★ make your stuff available on the Web (whatever format) under an open license [1]

★★ make it available as structured data (e.g., Excel instead of image scan of a table) [2]

★★★ use non-proprietary formats (e.g., CSV instead of Excel) [3]

★★★★ use URIs to denote things, so that people can point at your stuff [4]

★★★★★ link your data to other data to provide context [5]

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LOD Resources

Harper, Corey. Library linked data: tuning library metadata for the semantic web. An ALCTS webcast, March 16. 2011. (open access) http://www.ala.org/alcts/confevents/upcoming/webinar/cat/031611

›

Berners-Lee, Tim. The next web. A TED talk, February 2009. (open access) http://www.ted.com/talks/tim_berners_lee_on_the_next_web

Koster, Lukas (2011) Brief Introduction to Linked Data (open access) https://docs.google.com/document/d/1W6UOCLgxTyM0BlPfd5hs58dh4k6CUdLW354AjjtnJfk/edit

*See also LODLAM - Linked Open Data in Libraries, Archives & Museums at http://lodlam.net/

Enhancing Your Identity

Reinforce your Semantic Identity

❖ Website [Organization](#) Schema.org
   ◇ logo
   ◇ sameAs
   ◇ branchOf
   ◇ location
❖ Wikipedia
   ◇ Organization
   ◇ Description

Schema.org Organization to Home Page

Library 1: Montana State University Library

name:	Montana State University Library
alternateName:	MSU Library
alternateName:	Renne Library
alternateName:	Roland R Renne Library
description:	Montana State University (MSU) Library is here to help students, faculty, and the people

of Montana with their quest for information and research

logo [ImageObject]:

name:	http://www.lib.montana.edu/meta/img/montana-state-university-library.png

Type = http://schema.org/Library

Property
- name
- alternateName
- description
- logo
- telephone

Schema.org Organization to Home Page

Library 1: Montana State University Library

name:	Montana State University Library
alternateName:	MSU Library
alternateName:	Renne Library
alternateName:	Roland R Renne Library
sameAs:	http://en.wikipedia.org/wiki/Montana_State_University_Library
sameAs:	https://www.freebase.com/m/0j3y9r1
sameAs:	https://plus.google.com/+MontanaStateUniversityLibraryBozeman
sameAs:	https://www.facebook.com/MontanaStateUniversityLibrary
sameAs:	https://twitter.com/msulibrary
sameAs:	http://msulibrary.tumblr.com/
sameAs:	http://pinterest.com/msulibrary/
sameAs:	http://www.youtube.com/user/msulibrary

Type = http://schema.org/Library

Property
- sameAs

URI
- Wikipedia
- Freebase
- G+
- Facebook
- Twitter
- Tumblr
- Pinterest
- YouTube

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Schema.org Organization to Home Page

Library 1: Montana State University Library

name:	Montana State University Library
alternateName:	MSU Library
alternateName:	Renne Library
alternateName:	Roland R. Renne Library
branchOf [CollegeOrUniversity]:	Montana State University
url:	http://www.montana.edu/
sameAs:	http://en.wikipedia.org/wiki/Montana_State_University

Type = http://schema.org/Library

Property
- branchOf

http://schema.org/CollegeOrUniversity

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Schema.org Location to Home, Contact Us, or both pages

Library 1: Montana State University Library

name:	Montana State University Library
alternateName:	MSU Library
alternateName:	Renne Library
alternateName:	Roland R Renne Library
location [Place]:	
address [PostalAddress]:	
postOffice Box Number	173320
streetAddress:	Renne Library
addressLocality:	Bozeman
addressRegion:	MT
postalCode:	59717
addressCountry [Country]:	
name:	US

Type = http://schema.org/Library

Property
- location

http://schema.org/Place

Property
- address

http://schema.org/PostalAddress

Reinforce your Semantic Identity

❖ Website [Organization](#) Schema.org
  ◇ logo
  ◇ sameAs
  ◇ branchOf
  ◇ location
❖ Wikipedia
  ◇ Organization
  ◇ Description

Setup your organizational relationships

1. Locate parent organization
2. Identify where you belong
   a. Academic Departments
3. Join Wikipedia
   a. Create article stub in sandbox
   b. Provide Facts with verifiable references
   c. Include Library InfoBox for DBpedia
4. Work with OCLC Wikipedia Visiting Scholars to publish and the Wikipedia Library program - Do NOT self-publish

Web Development Practices for SEO

1. [Responsive Web Design (RWD)](#)
2. Speed and Website Performance

Responsive Web Design = 3 techniques

1. Media Queries
2. A Fluid Grid
3. Flexible Images or Media Objects

Responsive Web Design and SEO

1. Using a single URL for a piece of content prioritizes and allows amplification of link
2. No redirection is needed to avoid indexing complications
3. Saves resources for crawlers and users (1 bot indexes 1 site)

Website Performance and SEO

1. PageSpeed Insights
2. Understanding Critical Loading of Web Page Resources
3. Images and File Compression
4. Time to First Byte
5. Page Size

Source:
Using Site Speed in Web Search Ranking
Matt Cutts, Principal Engineer, Google Search Quality Team
http://googlewebmastercentral.blogspot.com/2010/04/using-site-speed-in-web-search-ranking.html

Search Engine Optimization
Findability

Social Media Optimization
Shareability

SMO - What is it?

- Practices that help make web content easily shared through social networks
- A way to help start and sustain conversation about the Library
  - Resources
  - Services
  - People
  - Topics of interest to libraries
    - Info Lit
    - Scholarly Communication
    - Reading

SMO - How

- Consistent identity across social media platforms
- Coordinating the social web with the semantic web
- Social Media Tagging

Consistent identity across social media platforms

TWEETS	PHOTOS/VIDEOS	FOLLOWING	FOLLOWERS	FAVORITES	More ⌄
1,715	77	293	1,178	446	

MSU Library
@msulibrary

Library @ Montana State University. We're your knowledge experts! Let us help you in your quest for information.

📍 Bozeman, MT, USA

🔗 lib.montana.edu

🕐 Joined April 2007

Tweet to MSU Library

Tweets   Tweets and replies

MSU Library @msulibrary · 8h

We're revamping our 3rd floor study area by the fountain. Here is a graphical rendering. Exciting! #MontanaState

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Montana State University Library

Inspiration - Discovery - Knowledge

Bozeman, MT · www.lib.montana.edu

17 Boards   229 Pins   0 Likes

Follow All   Send Profile

What Are You Reading?

CARSICK

5,832 Pins

Follow

Historical Montana State

58 Pins

Follow

MSU Library Events

Distinctive Dialogues
AN EVENING OF LIGHT FARE AND LIVELY CONVERSATION
THURSDAY, MARCH 1st, 2014

6 Pins

Follow

Memory Lane: Montana

9 Pins

Follow

MSU Library Videos

14 Pins

News Clippings
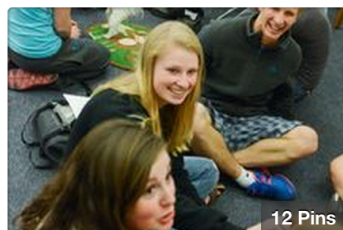
12 Pins

Book Group Selections

A FAREWELL TO ARMS
THE HEMINGWAY LIBRARY EDITION

8 Pins

Book Humor (Teehee!)

I don't judge people.
Until I see their bookshelf.

someecards
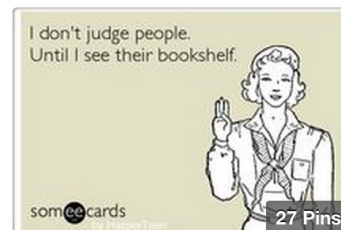
27 Pins

msulibrary

Uploads

32:11

Poetry Live! 2014 - Part 2
71 views   2 months ago

23:06

Poetry Live! 2014 - Part 1
33 views   2 months ago

18:37

MSU Library: Country Cultural Information
10 views   3 months ago

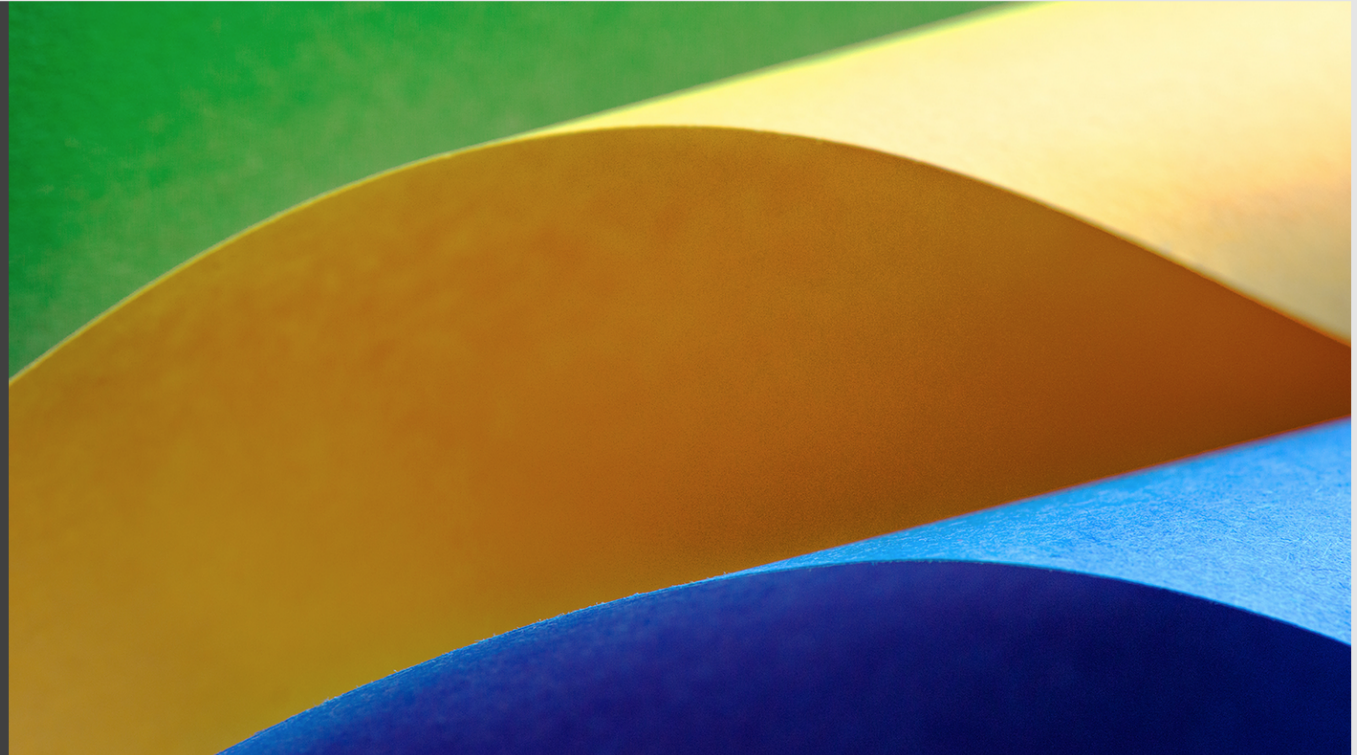MONTANA
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Montana State University
Library

Renne Library Bozeman, Mt 59717
(406) 994-3139
lib.montana.edu

Library
Today 7:00 am – 9:00 pm

64,734 views

About   Posts   Photos   Videos   Reviews

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Coordinating the social web with the semantic web

Topic

Montana State University Library en

mid: /m/0j3y9r1   **notable type:** /education/educational_institution   **on the web:** W wikipedia.org

Montana State University Library is the academic library of Montana State University, Montana's land-grant university, in is the flagship library for all of Montana State University System's campuses. In 1978, the library was named the Roland I president of the university. The library supports the research and information needs of Montana's students, faculty, and t Wikipedia [-]

| **Properties** | I18n | Keys | Links |

View and edit specific domains, types, or properties.

Filter options: ☐ Show all domains and properties

Common /common
≈ Freebase Commons

Topic /common/topic   x

Also known as /common/topic/alias

Also known as

MSU Library

Renne Library

Official website /common/topic/official_website

http://www.lib.montana.edu/

Topic equivalent webpage /common/topic/topic_equivalent_webpage

Topic equivalent webpage

http://en.wikipedia.org/wiki/Montana_State_University_Library

http://en.wikipedia.org/wiki/index.html?curid=33974954

Social media presence /common/topic/social_media_presence

Social media presence

https://www.facebook.com/MontanaStateUniversityLibrary

https://twitter.com/msulibrary

http://www.youtube.com/msulibrary

http://msulibrary.tumblr.com/

Social Media Tagging

Gearing Up Your Sites for Sharing with Twitter & Facebook Meta Tags

http://acrl.ala.org/techconnect/?p=4062

Developers   API Health   Blog   Discussions   Documentation   Search

Home → Documentation

Twitter Cards

View | What links here

Updated on Fri, 2014-06-27 10:27   API version 1 API version 1.1

Introduction   English | 日本語

With Twitter Cards, you can attach rich photos, videos and media experience to Tweets that drive traffic to your website. Simply add a few lines of HTML to your webpage, and users who Tweet links to your content will have a "Card" added to the Tweet that's visible to all of their followers.

The Tweet below shows a Player Card below the 140 characters:

Twitter Advertising ✓   Follow
@TwitterAds

Connect & discover: The Twitter story in 1:40
youtu.be/15u2G-L07x8

7:55 AM - 8 Nov 2013

Twitter - Connect & Discover

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Open Graph Overview

In this document:

- Telling Stories with Open Graph
- How Open Graph Works
- Review Process
- Privacy
- Learn More

Telling Stories with Open Graph

Open Graph lets apps tell stories on Facebook through a structured, strongly typed API.

People use stories to share the things they're doing, the people they're doing them with and the places where they happen. Open Graph lets you integrate apps deeply into the Facebook experience, which increases engagement, distribution and growth.

Here's an example story from Goodreads:

MSU Library @msulibrary

These MSU Cows are some of the best! How can we tell? These cows are out standing in their field! arc.lib.montana.edu/msu-photos/ite… #tbt #MontanaState

Reply Retweet Favorite More

MSU Library

Black and white photo of the Montana State University Dairy Herd (2),…
By **MSU Library** @msulibrary
Montana State University dairy herd grazing in a pasture.

View on web

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In #Montana we regularly see Bald Eagles, but have you ever heard one? Happy Independence Day, MSU! acousticatlas.org/item.php?id=676 #AcousticAtlas

↩ Reply   ⇄ Retweet   ★ Favorite   ••• More

 MSU Library

Bald Eagle, Yellowstone National Park, Acoustic Atlas Recording - MSU...
By **MSU Library** @msulibrary

Listen to this and other natural sounds of the West at acousticatlas.org

View on web

```
11
12  <!-- Social Media Tags -->
13  <meta name="twitter:card" content="summary_large_image">
14  <meta name="twitter:site" content="@msulibrary">
15  <meta name="twitter:creator" content="@msulibrary">
16  <meta name="twitter:title" content="Bald Eagle, Yellowstone National Park, Acoustic Atlas Recording - MSU Library">
17  <meta name="twitter:description" content="Listen to this and other natural sounds of the West at acousticatlas.org">
18  <meta name="twitter:image:src" content="http://acousticatlas.org//./img/proxy/2013-02-01-16-36800_orig.jpg">
19  <meta name="twitter:url" content="http://acousticatlas.org//item/676">
20
21  <meta property="og:image" content="http://acousticatlas.org//./img/proxy/2013-02-01-16-36800_orig.jpg">
22  <meta property="og:title" content="Bald Eagle, Yellowstone National Park, Acoustic Atlas Recording - Montana State University (MSU)
    Library">
23  <meta property="og:description" content="Listen to this and other natural sounds of the West at acousticatlas.org">
24  <meta property="og:url" content="http://acousticatlas.org//item/676">
25  <meta property="og:type" content="website" />
26  <meta property="og:site_name" content="Acoustic Atlas - MSU Library"/>
27
28  <link rel="image_src" href="http://acousticatlas.org//./img/proxy/2013-02-01-16-36800_orig.jpg">
29
30
31
```

Questions?

Themes discovered

Traditional SEO is an afterthought

Librarians need to think bigger re potential traffic

Organizational communication can be improved

Data in repositories often messy

Analytics usually poorly implemented

Vendors slow to catch on to SEO problems

Library software lacking for semantic web SEO

Libraries fail to establish semantic identities

New Knowledge Work = New Services

❖ Everyone struggles with these issues
- University, colleges, departments, centers, etc.
- Theory: SEO increases citations/university rankings

❖ Develop a team
- SEO skills
- Repeatable processes
- Show value to users, stakeholders, and potential customers