



recibrary:
**Conceptualizing a comprehensive
culinary digital library**

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Abstract

A full-service digital library, especially designed to serve the needs of academic culinary arts programs is currently non-existent. It is in light of this situation that this paper attempts to broadly conceptualize recibrary, a comprehensive digital library capable of supporting a modern, post-secondary culinary arts program. Five particular aspects of recibrary are the main focus of this paper: collection content, general system architecture, metadata usage, interface design and availability of specialized tools and services. Relevant concepts and best practices from the literature and a background study of commercial websites aimed at home cooks are presented alongside specific recommendations for the system under consideration.

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1 Introduction

Imagine being a culinary arts student for a moment. What would you do if you were in the kitchen, your soufflé was falling for the third time and you could not figure out why? Or you were in your dorm room at three in the morning finishing an assignment for class tomorrow and just realized you had forgotten to copy a recipe you need from that book in the library that is currently closed? Or you were out of the country on your internship and your boss asked you to prepare the menu for the next day based on the supply list for the day's delivery and a goal of making 15% profit while not charging more than €25 per dish? It's likely that you would wish that you had access to your college library, with its plethora of resources and helpful and knowledgeable staff.

It is in times like these that a traditional brick-and-mortar library often fails to meet the needs of its patrons. A digital library, on the other hand, is better suited to providing access to all of these resources with less regard to time and geographic constraints, given the availability of an Internet-connected computer. Unfortunately, this type of full-service digital library does not currently exist in the field of academic culinary libraries. There are a number of traditional libraries that have made available digitized versions of some of their culinary-related, historically-significant special collections, such as the Peacock-Harper Culinary Collection housed at Virginia Tech [<http://spec.lib.vt.edu/culinary/>] and the Janice Bluestein Longone Culinary Archive housed at the University of Michigan [<http://www.clements.umich.edu/culinary/>]. These collections, however, suffer from a few problems – including varying degrees of digitization, lack of support services and uneven classification – that would make their inclusion in a general academic collection less than ideal.

Additionally, some academic libraries that support culinary arts programs, such as the Conrad N. Hilton Library at The Culinary Institute of America [<http://library.culinary.edu/>] or the Johnson & Wales University Library [<http://library.jwu.edu/>], do make sections of their resources and services available

remotely. Because of the physical nature of these institutions, however, the resources available remotely are limited to more traditional offerings such as the library OPAC, subscription-based journals and subject and research guides. On the whole, though, a full-service digital library, especially designed to serve the needs of academic culinary arts programs is currently non-existent.

It is in light of this situation that this paper attempts to broadly conceptualize recibrary, a comprehensive digital library capable of supporting a modern, post-secondary culinary arts program.

The recommendations presented herein could be implemented on an institutional basis; however, given the digitization-heavy nature of the proposed venture, recibrary would likely be better suited to centralized development and support with options for institution-level buy-in and customization.

Additionally, this type of centralization would make recibrary appealing to other potential patron groups such as historians and anthropologists interested in researching culinary trends and practices and food-related businesses.

This paper will focus on five particular aspects of recibrary: collection content, general system architecture, metadata usage, interface design and availability of specialized tools and services. The remainder of this paper will be structured as follows. Section 2 will briefly discuss the the background study of commercial recipe sites performed for this paper, including a discussion of which sites were reviewed and how the evaluation criteria were chosen. Sections 3 through 7 will each cover one of the five main areas listed previously. With the exception of Section 4, which covers general system architecture, each of these sections will first provide an overview of the relevant information gathered from the background study followed by specific recommendations for recibrary. Finally, Section 8 will present some final thoughts on recibrary.

2 Background Study

Not surprisingly there is a lack of literature on the specific topic covered by this paper. Given this

shortfall, it was felt that a hands-on background study of culinary-focused systems needed to be done to supplement the literature review. The narrowly focused content and limited scope of the digitized culinary collections currently available from college and university libraries make them poor candidates for this type of study. Moreover, the available literature abounds with information about traditional library forays into the digital world from which information could be drawn.

Consequently, it was decided that the background study for this paper would be performed on commercial websites aimed at home cooks. Not only could these sites provide some information about best practices for the field of culinary-focused resources, but they could also prove to be repositories of domain-specific tools and services that could be incorporated into recibrary. Four of these commercial websites were chosen for this study:

- Allrecipes [<http://allrecipes.com/>]
- Epicurious [<http://www.epicurious.com/>]
- RecipeSource [<http://www.recipesource.com/>]
- RecipeZaar [<http://www.recipezaar.com/>]

In order to get as complete a picture as possible of the sites under consideration, the evaluation questionnaire was developed to include both a more structured, task- or goal-oriented section and a more free-form subjective evaluation and exploration. The task-oriented section focused on typical user goals and expectations for this class of website accompanied by questions and prompts meant to solicit information about the specific areas of interest for this paper (De Marsico & Levialdi, 2004; George, 2005; VandeCreek, 2005). The second section of the study questionnaire focused on free-response subjective evaluation questions that focused on interface design, content breadth, metadata usage and the availability of collaborative tools. Each of the previously noted websites were evaluated using this questionnaire by the author. The complete questionnaire and the results of the individual

assessments performed in this study are available in Appendix A.

3 Collection Content

3.1 Background Review

The main content focus of the general interest sites reviewed for this paper is on recipes for use by home cooks. The recipes that they present come from a number of different sources, both commercial and personal. With the exception of RecipeSource, the reviewed sites have a community building and social networking orientation that necessitates the need to accept user submitted recipes as part of their collections. RecipeSource, while lacking user accounts, is built on a foundation of personal recipes collected from newsgroups and mailing lists during the early days of the Internet (RecipeSource, *RecipeSource: About Us*). Despite their varied aims, all of the reviewed sites offer options for submission of new recipes by readers.

Besides personal recipes, two of the sites reviewed, Allrecipes and Epicurious, also contain recipes from commercial sources. Allrecipes contains recipes from site advertisers – typically food and beverage companies – as well as from the line of *Taste of Home* consumer magazine publications. Epicurious is owned and operated by Condé Nast Digital, a division of publishing house Condé Nast Publications, Inc.. As such, it features recipes from various Condé Nast publications, most notably *Bon Appétit*, *Gourmet*, *SELF*, *Cookie* and *Parade* (Condé Nast Digital, *Help at Epicurious.com*).

For one of the sites, RecipeSource, the focus is exclusively on recipe collection and sharing (RecipeSource, *RecipeSource: Answers to Frequently Asked Questions*). The other three sites, however, offer some additional domain-specific content beyond recipes. These resources include materials such as how-to articles, cooking tips and advice, demonstration videos and encyclopedia- or dictionary-style entries on ingredients, preparation techniques and culinary terminology. Epicurious, in particular, has a wide range of supporting materials available, including an extensive video tutorial

library, articles on a variety of culinary and gastronomic subjects and a digital version of the popular food dictionary *The Food Lover's Companion*, 2nd ed. by Sharon Tyler Herbst.

3.2 Collection Development

In order to be relevant as a resource for culinary arts programs, the emphasis of recibrary's collection development strategy needs to be on recipes. Providing access to recipes from a wide range of cuisines and time periods is crucial to supporting a culinary arts program. Consequently, much of the focus in the collection development strategy will be on the acquisition of materials containing recipes, including but not limited to commercial cookbooks, community or association cookbooks, periodicals, manuscripts and vetted web resources.

Besides emphasis on food preparation, modern culinary arts programs also include courses on business and management, food-related cultural studies, nutrition, social science and humanities, computing and the physical sciences (Johnson & Wales University, n.d.; The Culinary Institute of America, n.d.). So, while the emphasis might be on recipes, recibrary's collection development strategy needs to also include provisions for the acquisition of materials in related areas in order to support the standard academic culinary arts curriculum. Some of the more closely related fields that are found in libraries that support traditional culinary arts programs and culinary-focused special collections include gastronomy, cooking and baking techniques, food safety and sanitation, culinary history, culinary criticism, culinary professions and professionals, nutrition, kitchen appliances and equipment, hospitality, home economics and etiquette (President and Fellows of Harvard College, n.d.; University of Michigan, n.d.; VirginiaTech, 2006). In an effort to be more comprehensive, collection development specifications for recibrary should also highlight selection criteria for material in an array of subject areas beyond what might be found in these traditional collections including such topics as agriculture, animal husbandry, botany, biology, chemistry, management, finance, marketing and communications.

Additionally, a baseline of up-to-date general reference material such as dictionaries, encyclopedias and atlases and domain specific reference materials such as food dictionaries should be considered essential to the collection.

While there is a wealth of textual material in these subject areas that is born digital or already available in a digitized format, much of recorded culinary knowledge is still only available in print media.

Because of this, recibrary should include provisions for the collection and digitization of these valuable resources as part of its collection development strategy. In order to provide the most utility from these materials, digitization should include the creation of both images and machine readable text.

Besides textual resources, recibrary should make every attempt to collect, digitize and make accessible subject -appropriate audio and video resources such as documentaries, cooking shows and instructional videos. Overall, recibrary's billing as a comprehensive culinary digital library aimed at the academic community necessitates a collection development strategy that covers a fairly wide range of subject areas as well as a variety of formats.

4 System architecture

As can be seen from the discussion of collection content in Section 3.2, recibrary aims to bring together a complex set of resources in order to support its mission. Consequently, the underlying architecture will need to be up to the task of storing, managing, preserving and delivering this multi-faceted and extensive digital collection. The Flexible Extensible Digital Object Repository Architecture, commonly known by its acronym Fedora, is an extensible open source digital content repository framework that is up to the task. The Fedora Service Framework consists of a core repository service, known as the Fedora Repository Service, that is loosely coupled with other Fedora services that interact and collaborate with one another to flexibly extend the functionality of the core repository service (DuraSpace, 2009). Table 1 highlights some of the major Fedora services that might be of particular

interest for use in recibrary.

Service	Description
Generic Search Service (GSearch)	A configurable search service that can index any data housed in or any dissemination of Fedora digital objects
Directory Ingest Service (DirIngest)	A service to ingest hierarchical directory files into a Fedora repository, creating both digital objects and relationships among them as directed
OAI-PMH Provider Service (PROAI)	A configurable OAI Provider service for harvesting metadata out of a Fedora repository utilizing the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH)

Table 1: Fedora Framework Services (DuraSpace, 2009)

In addition to being able to interact with the services created by Fedora, the framework components can also collaborate with external services through a set of web service interfaces in order to provide the additional functionality required by the organization (DuraSpace, 2009; Lagoze et al., 2004). A simplified visual representation of a general Fedora architecture for recibrary is shown in Illustration 1. The main draw of the Fedora Repository Service for use in recibrary is its ability to aggregate local and distributed content that exists in varying digital media with metadata into complex digital objects (Lagoze et al., 2004). Fedora Repository can also represent the “complex structural, semantic, provenance and administrative relationships” among these digital objects and associate these digital

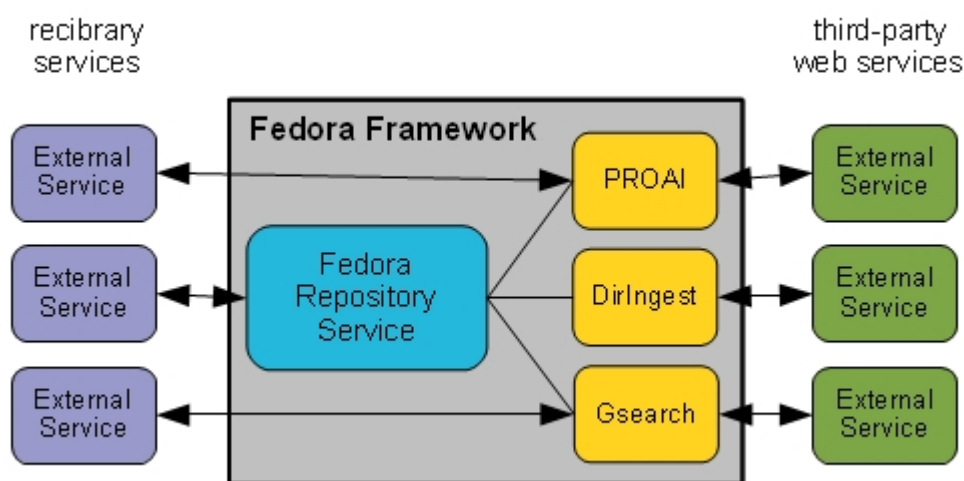


Illustration 1: A simplified Fedora architecture for recibrary

objects with web services, often used to generate dynamic disseminations of the content housed within digital objects (Lagoze et al., 2004; The Fedora Development Team, 2008). Overall, the Fedora Service Framework is well-suited to recibrary's need to make its content and services available over the web.

5 Metadata

5.1 Background Review

Gathering information about metadata usage from the end user interface of a system can be a little difficult; however, it was clear from the background review that current commercial recipe websites make little to no use of metadata. The only trace of metadata usage that could be found in the review was a use of descriptive metadata in the form of controlled vocabularies, and much of what was used was limited or lacked organization. The best example of controlled vocabulary use was in Epicurious.

The recipe classification scheme employed by Epicurious is a faceted taxonomy. This taxonomy consists of eight facets: cuisine, main ingredient, type of dish, season/occasion, meal/course, preparation method, recipe category and dietary consideration. This type of classification is admirable and the range of facets is appropriate for the subject area. In general, this taxonomy improves the site's browsing capabilities and likely its search functionality as well. Unfortunately, it also has some drawbacks that make it a less than ideal model for use in an academic library.

Firstly, only two – cuisine and main ingredient – of the eight facets are mandatory for user recipe submission, with no mention of whether all are mandatory for its commercial content. This lack of enforcement automatically compromises discovery of recipes for which this data has not been recorded. The second downfall of Epicurious's taxonomy is that each facet is flat, having only one layer of categories under each facet heading (Condé Nast Digital, *Epicurious.com: Food & Drink Recipe Browsing Tool*). While this provides some descriptive power, it lacks the fuller functionality that could be provided by a hierarchical breakdown. For example, under the “cuisine” facet, a hierarchical

taxonomy that provided for increasing specificity from continent to country to regional cuisine would offer greater search and discovery support. Additionally, the categories offered under each facet are not exhaustive nor mutually exclusive; most notably, there exist only 31 categories under the “main ingredient” facet in Epicurious's taxonomy. These categories are in no way an exhaustive list of possible recipe ingredients that exist in world cuisine and, moreover, a “turkey” category is present alongside a “poultry” category, making the categories not mutually exclusive. Ultimately, while the classification scheme Epicurious has employed is enviable among its competitors, its inconsistency could impair search and discovery in a large collection.

Overall, metadata is an important part of any serious digital library, as it supports not only the basic search and browse functionality of the system but also a number of advanced features that could support the central mission of such systems. recibrary is no exception to this rule. Consequently, the choice of metadata standards and application should be considered thoroughly during all stages of recibrary's life cycle. The remainder of this section will highlight some suggested standards and technologies in this important area that should be considered for recibrary.

5.2 Metadata Standards

The Fedora architecture, posed as the platform for recibrary, requires use of the Dublin Core Metadata Element Set by default; however, a much more involved set of metadata requirements is needed to support the mission of the system. Because use of the Dublin Core metadata standards is already required by the recommended repository software, it makes sense to frame the remaining metadata needs of the system under this standard in the form of a metadata schema. In the Dublin Core standard, this schema is called a Dublin Core Application Profile. Heery and Patel (2000) define application profiles as “schemas which consist of data elements drawn from one or more namespaces, combined together by implementors, and optimised for a particular local application.”

Based on the DC-Library Application Profile (DC-Lib) created by the DCMI-Libraries Working Group, available at <http://dublincore.org/documents/2004/09/10/library-application-profile/>, the proposed recibrary Application Profile utilizes elements from two namespaces: DCMI Metadata Terms [<http://dublincore.org/documents/dcmi-terms/>] and MODS elements used in DC-Lib Application Profile [<http://www.loc.gov/mods>]. In similar fashion to DC-Lib, the elements presented from these two namespaces will support much of the metadata that is needed for bibliographic control. The standard encoding schemes will be supplemented by a few recibrary-defined controlled vocabularies developed to support specific features within the recibrary system such as enhanced recipe discovery and instructional support. The complete proposed recibrary Application Profile can be found in Appendix B.

5.3 Controlled Vocabulary

In order to enhance resource discovery, recibrary should utilize a number of controlled vocabularies. As noted in the recibrary Application Profile, traditional classification schemes will be used to populate the subject element of records in the general collection. These schemes include the Library of Congress Subject Headings, the Dewey Decimal Classification, Library of Congress Classification and the Universal Dewey Classification. As many of these classification schemes as are applicable to a given resource will be used. In addition, custom controlled vocabularies will be developed. The main aim of these vocabularies will be to facilitate the classification of recipes in the digital recipe collection to support searching and browsing functionality for this collection; however, some will also support other features of recibrary as well. These proposed vocabularies will cover a range of domain specific topics including cuisine, ingredients, equipment, course, meal and preparation method. In order to provide the most comprehensive support, these vocabularies should be hierarchical in nature and their content should be as exhaustive and mutually exclusive as possible. To maintain quality these

classifications should be applied by professional catalogers or automatically, if feasible. Additionally, a thesauri for these vocabularies should be produced to ensure standard application by catalogers and made publicly-available electronically to facilitate discovery for end users.

5.4 User tagging and annotations

While there has been some debate in the library science community about the ability of user tagging to replace traditional classification structures, many studies have shown that use of tagging alongside traditional classification structures can help to enhance access (Goh et al., 2008; Rolla, 2009). By providing alternative access points into the system beyond formal classifications that can sometimes be difficult for end users to grasp, tagging could prove to be a valuable addition to recibrary. Tagging can also be used to help create additional semantic links between resources in the collection by associating content, picking up on relationships that end users may relate to but which formal classification schemes miss. In general, “folksonomies are much nimbler and more flexible than controlled vocabularies tend to be,” making their use appealing for quickly changing and growing collections (McElfresh, 2008). In addition, the set of tags assigned to records in the system could be evaluated on a regular basis with an eye towards utilizing some of the classifications found therein to improve recibrary's classification practices or add new content to the controlled vocabularies it maintains.

There are, however, some inherent drawbacks to the use of tagging in a library system. One of the major problems is the use of tags that are personal in nature rather than content-related. For example, an end user may want to assign the tag 'bak101final' to several resources that he think he may use to complete the term project for a course, Baking 101. This tag has very little to do with content and much to do with an end user's need to organize and retrieve resources that he has previously discovered. Other users will likely not find this type of tag helpful in discovering related resources and having a lot of these tags mixed into the general classification of resources may begin to hinder

discovery. To alleviate this problem, recibrary should create two separate categories of tags, public and private.

Users will assign both types of tags to resources, choosing which category each tag belongs to as they assign it. Public tags would be shared with all users and should relate to classification by topics such as resource content, genre classification and series designation. This set of tags should be monitored to ensure appropriate content, with those deemed outside the scope of public tags being converted to private tags associated with the user account of the tag's creator. Private tags, on the other hand, can contain any type of classification that a user wishes, including those topics covered by public tags. These tags would only be available and visible to the user account of the creator by default, making them ideal for personal organization. Similar provisions should be made for private annotations, especially for the recipe collection. While not included in the general public interface, the option for discretionary sharing of private tags and annotations with other users should be included in order to facilitate collaboration.

6 Interface Design

6.1 Background Review

One thing became certain during the site review process: these sites were developed for a mass market, commercial audience by commercial entities or domain enthusiasts, not information professionals. All of the sites, with the exception of RecipeSource, were riddled with advertisements and featured layouts that were broken into some many chunks that the pages felt busy. RecipeZaar, in particular, utilizes a so many font sizes and colors that its pages feel very scattered and choppy. On a high note, RecipeSource's screen design was simplified and consistent with text that was easily readable, although the recipes themselves lacked anything resembling consistency in layout, font size and content because of their unaltered use from plain text submissions.

All of the reviewed sites did a fairly good job of keeping navigation links to major site resources persistently available and consistently located in a header, footer, sidebar or some combination thereof. In addition, their choice of terminology used for labeling was clear, concise and applied consistently throughout the site. Unfortunately, use of breadcrumb navigation or a similar tool to help users remain aware of their position within the site was inconsistently applied across the sites that were reviewed, with the exception of RecipeSource who used breadcrumb navigation persistently.

One final point of note related to the interface design of the reviewed sites was the offering by Allrecipes of what it terms the “Kitchen-friendly View”. The “Kitchen-friendly view” is an alternative way to display the recipes in the collection that is optimized for use on laptop screens so that users can bring a laptop into the kitchen rather than having to print out recipes for use while cooking. This view is compact and the content is pared down to the bare essentials needed for following a recipe, mainly an ingredient list and step-by-step directions. As an added bonus, a timer is built in to the screen design. A similar layout option should be included in recibrary to increase usability in the classroom. Overall, each of the interfaces that were reviewed had their strong points but each fell short of excellence in several ways. For recibrary, it is important to learn from these lessons in order to create a better user experience. The remainder of this section will cover some important topics and considerations that should be explored in recibrary's interface design.

6.2 Labeling and terminology

Use case studies of and research into user interfaces for library websites have shown that clarity of website terminology and labeling is one of the most important factors in creating a user interface that is easy to use (George, 2005; Ramayah, 2006). Accordingly, use of information science jargon should be avoided in recibrary's user interface in favor of terminology that is more in line with user expectations. Common web terminology should be used for labeling wherever possible. For more specialized

features where common terminology does not exist, terminology should be chosen that is compatible with the target domain. For example, a link to a single-screen compact recipe view that has been created to increase ease of use while in the kitchen should be labeled “kitchen view” rather than “compact view”. Ultimately, whatever terminology is chosen, it should be applied consistently throughout the system and terms should be defined in recibrary's help documentation to assist users who are new to the system or are unfamiliar with the target domain.

6.3 Navigation

Navigation is another key area of concern for library user interface design (George, 2005; Ramayah, 2006, VandeCreek, 2005). In the case of recibrary's user interface, three key considerations should be addressed. First, consistent access to important general library areas, tools and services such as help documentation, the “Ask a librarian” feature, basic search, site map, user account interface and collection browsing should be available on all pages. Second, the navigational hierarchy should be kept as shallow as possible to avoid creating a user perception of having “too many clicks”; ideally, the main interface for all services should be accessible within three mouse clicks of the homepage. Finally, recibrary should make use of breadcrumb trail navigation to help users remain aware of their location in the system and to facilitate navigation.

6.4 Screen Design

When it comes to recibrary's screen design, or layout, consistency, simplicity and accessibility are crucial. Consistency in color scheme, font size, formatting, icon selection and placement of globally available navigation links (as discussed in Section 6.3) across all pages is critical to creating a unified perception of the system, to improving perceived ease of use and to helping users learn to navigate the system (George, 2005; Ramayah 2006). recibrary's layout should also strive for simplicity. The major downfall of the commercial sites reviewed for this paper was their complicated layouts that were overly



Illustration 2: Standard Recipe View Mockup

segmented and contained too much information at once. This resulted in a page that felt frustratingly busy, making information hard to locate. Simplifying the layout of each page in recibrary to include only necessary information presented in as few segments as possible will make the information the user is searching for easier to identify and read. Lastly, use of scalable, easy to read fonts and a high contrast, simplified color scheme will help ensure accessibility for vision impaired users.

6.5 Custom Recipe View

In an effort to improve the utility of the recipe collection, recibrary should offer two distinct default recipe views with various options for user customization: a standard view and a pared down view ideal for use in the kitchen. Examples of what these views might look like can be found in Illustrations 2 and 3. recibrary should support further modular customization of these views, allowing users to have

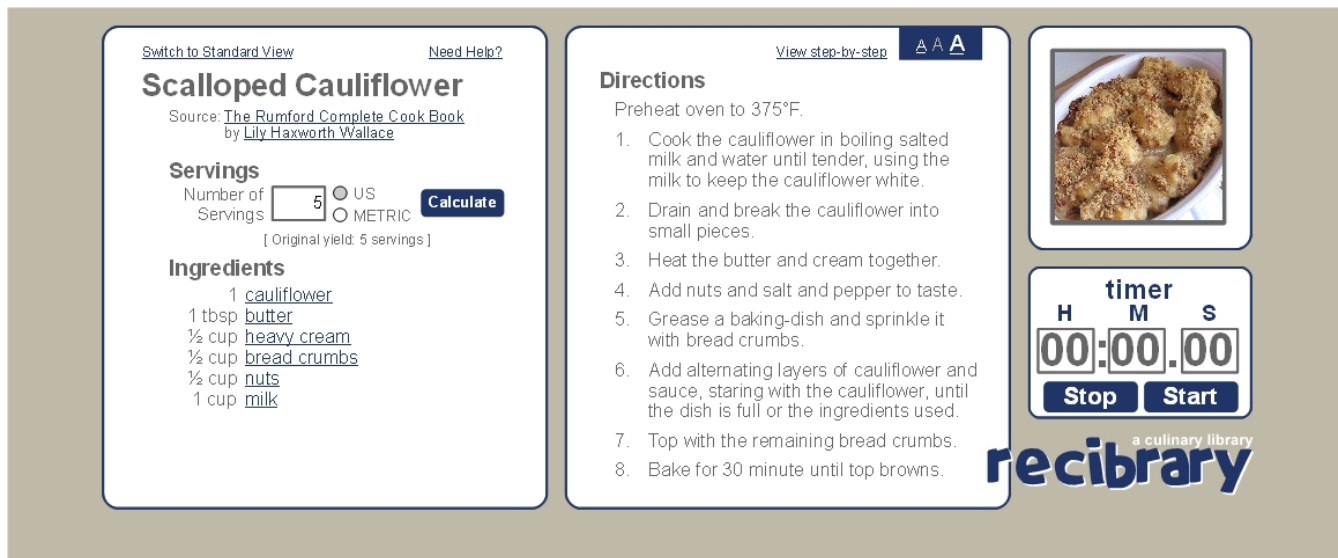


Illustration 3: Kitchen View Mockup

more or less information displayed and to have information appear in the order and placement that makes the most sense for them. In addition, the system should allow these custom views to be saved to a user account to replace the default views for individual users.

The recommended underlying Fedora architecture is ideal for supporting this type of functionality. It is possible for Fedora to pass one or more documents encoded in Extensible Markup Language (XML) that conform to recibrary-defined XML schema along with instructions for an associated personalized view encoded in extensible stylesheet language (XSL) to an external web service that can use these files to create a custom webpage for display. A sample of an XML file containing the main content of the recipe used for the mockups in Illustrations 2 and 3 as well as its associated XML schema are available in Appendix C.

7 Tools and Services

7.1 Background Review

With the exception of RecipeSource, the sites that were reviewed for this paper offered a number of features beyond their basic functionality of collecting and sharing recipes and related culinary content.

Allrecipes, Epicurious and RecipeZaar all offered user profile functionality that supported various levels of interface customization, resource sharing and community interaction. All three of these sites also offered a recipe request feature, menu creation functionality, recipe reviews, nutritional analysis of recipes and automated creation of shopping lists from recipes; all of these features would make good candidates for inclusion in recibrary. Other notable features that were discovered during the background review were:

- automated recalculation of ingredient measurements based on changes in serving and selection of a desired unit measurement system;
- Epicurious's cooking primers, specialized pages that provide an introduction to a particular culinary subject and a place to gather together relevant resources from within the site's collection (see Illustration 4 for an example)
- and an interactive seasonal ingredient map, also presented by Epicurious, which visually presents links to encyclopedic information about and recipes for seasonal ingredient using a geographic-temporal hybrid map interface (Condé Nast Digital, *Peak-Season Map at Epicurious.com*)

7.2 Selected Highlights

In order to fulfill its role as a comprehensive culinary library, recibrary necessarily needs to offer tools and services similar to its commercial predecessors and more. In particular, features need to be incorporated to serve three main functional goals: research and discovery, collaboration and instructional support. The remainder of this section will highlight some of the major tools and services that recibrary should offer in these three critical areas.

Cakes: Recipes and Tips

From simple pound cakes to towering layer cakes, a complete guide to baking, plus ten classic cake recipes
By Nick Malgieri

intro types of cakes fillings & frostings basic steps equipment



Pictured: Devil's Food Cupcakes with Brown Sugar Buttercream (left), Golden Cake with Chocolate Sour Cream Frosting (right)

Cakes celebrate the ceremonies and milestones of our lives—birthdays, weddings, and almost any other festive occasion—and for good reason. No matter the variety—layer cakes, sheet cakes, Bundt cakes, cheesecakes—brought to the table at the end of the meal, a cake always elicits admiration. Cookies are delightful and pies are tasty, but no dessert is quite as impressive as a beautifully baked and finished cake.

Cake recipes don't have to be fussy and difficult, however. Simple, unfrosted varieties such as pound cakes and coffee cakes are just as delicious as their showier layered cousins. In this primer, we'll explain the differences between the various types, as well as the basic steps that are common to nearly all cake recipes. If you're a novice baker, you can start with the simple pound and angel food cakes in the list below and move on to more complicated recipes as you gain confidence. And if you're already experienced, understanding the different categories of cakes and the various options for finishing them will give you a basis for experimenting and creating recipes of your own.

types of cakes **Ten Iconic Cakes**

Illustration 4: Sample of Epicurious's Cooking Primers

7.2.1 Research and Discovery

User Accounts

User account functionality is an integral aspect of the model behind recibrary; user accounts are what transforms recibrary from an organized collection of resources into a useful research and collaboration tool. Use of personal accounts allows recibrary to provide a set of services and customizations that are not possible in digital libraries that lack this type of feature. User accounts underpin the functionality of many of the features and services offered by recibrary, especially those related to research support such as tagging, annotations, search saving, menu planning and storage of personal recipes.

Additionally, their use makes it possible to offer access to collaborative tools such as forums, chat and collaborative workspaces. Finally, user accounts afford the creation of personalized portals that can provide regular users with a customizable portal to the system that can provide quick and ready access to commonly used system resources, saved research materials, collaborative tools and instructional support modules.

Nutritional Analysis

Learning about nutritional planning is an important component of a complete culinary curriculum. Consequently, recibrary should support automated nutritional analysis of both individual recipes from the collection and individual personal recipes as well as complete menus. This nutritional analysis should be dynamic, automatically generated each time a recipe or menu is viewed or the number of servings is recalculated, and should include all industry standard nutritional facts. The data used to calculate this information should be drawn from a custom database maintained by recibrary and populated by data from reliable sources.

Advance Recipe Search and Browsing

Because of the central importance of the recipe collection in the library's holdings, the ability to locate specific recipes from within the the vast array housed in the recibrary collection is of vital importance to the functionality of the library. While the basic search functionality will support keyword searching of the collections through a set of default fields and a site search, the advanced search functionality should allow targeted searching through all publicly-available fields in a record. The advanced search interface should support the building of multi-faceted searches by novice users with field specific drop-downs for controlled vocabulary attributes, contextualized help, automated query expansion and visual selection of logic operators; however, the system should also support the needs of more experienced users by offering easy access to relevant thesauri, supporting the full range of Boolean logic operators

and search saving.

Along a similar vein, recibrary's browsing functionality should support resource discovery to the fullest extent possible. Users should be able to browse recipes by each of the classification systems utilized by recibrary. Additionally, the system should support the ability to narrow the browsing set by placing limits from multiple classification schemes. For example, when trying to find the perfect chicken-centered recipe to fill the role of *secondo* for an assignment that requires planning of a traditional Italian meal menu, a user may first limit the browsing set to those that include chicken in the ingredient list and those that are classified as lunch and dinner dishes before then browsing through all of the remaining recipes classified as Italian cuisine.

Pathfinders

In order to further facilitate research and discovery, recibrary should develop and make accessible and extensive set of pathfinders for both culinary and non-culinary topics. These pathfinders should both pull together information about resources relevant to the topic it covers but should also provide guidance about effective search strategies for the given domain. For basic culinary topics, these pathfinders could take a form similar to the cooking primers offered by Epicurious that were discussed in Section 7.1. These specialized pathfinders would bring together resources such as associated how-to articles, recipes, technique videos and encyclopedic information about ingredients and equipment in order to provide an in-depth look at the culinary topic being covered and highlight the relevant resources available in recibrary's collection.

7.2.2 Collaboration

Collaborative Workspaces

Because it is targeted at academic culinary arts programs, recibrary should provide access to a host of tools in order to support collaborative project work. The main access point to these tools would be

through customizable collaborative workspaces. Although they retain utility for other uses, these workspaces would be designed specifically to support work on collaborative academic projects. Anyone with a user account would be able to create a workspace and add other users to it. recibrary's collaborative workspaces would bring together several different tools and services that could be accessed by all members of the workspace. Most notably, these workspaces would: support document sharing; pool collection resources and saved searches based on custom private tags; support social bookmarking of external online resources; host a workspace specific message board to support asynchronous collaboration; host and log chat sessions to support synchronous collaboration while maintaining a record for future reference; host shared whiteboard sessions with support for snapshot saving to allow for visual synchronous collaboration while maintaining a record for future reference; offer calendar and task tracking functionality to support deadline management and offer full search functionality of workspace resources including saved collection resources, logged chats, logged whiteboard snapshots, message boards and shared documents (Redden, 2010; Goh et al., 2008; Bothma, Bothma and Cronjé, 2008). In line with the recommendations of Bothma, Bothma and Cronjé (2008), the layout of these workspaces should be modular, allowing each team member to create a custom view of the workspace that fits his personal needs.

7.2.3 Instructional Support

Course Sites

In order to provide instructional support inline with its mission, recibrary should offer customizable course sites. These course sites would essentially be a special class of the collaborative workspaces described in the previous section. Course sites can only be created by users who have been designated as instructors and, unlike standard collaborative workspaces, only those with instructor status can make changes to the layout. In order to fulfill their role as instructional support tools, course sites would also

have additional functionality that is not available in standard workspaces, including assignment submission, date controlled content rollout and creation of associated collaborative workspaces to support small group work.

8 Conclusion

As can be seen from even this concise discussion, creation of a comprehensive digital library capable of supporting a modern academic culinary arts program is a massive undertaking. This paper has presented a number of topics related to five key areas that need to be considered in the development process of such a system: collection content, general system architecture, metadata usage, interface design and availability of specialized tools and services. Despite its coverage of a number of topics, this paper has only introduced them briefly; these topics will need to be explored much more deeply before implementation would be possible. Moreover, those topics presented here are only a small fraction of the total number that will need to be researched in order to create the most comprehensive and usable digital library possible. Ultimately, this paper has presented an initial, broad conceptualization of a full-service digital library, especially designed to serve the needs of academic culinary arts programs, through a particular focus on five important areas. The concepts presented herein could be used as a springboard for the further exploration and research that would inevitably need to be undertaken to bring this library into existence.

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Appendix A:

Background Study

Evaluation Questionnaire

Name of website:

URL:

Date of review:

Task/goal-based Evaluation

Evaluation of search and browse functionality for end users – Each task should begin from the homepage

1. Using only basic search, perform the following tasks and record the requested information

a. Find a recipe for chocolate chip cookies

i. Can you find one?

ii. Time taken (no more than 5 minutes):

iii. Search terms used:

iv. Did you consult help documentation? If so, was it helpful?

v. Subjective observations:

b. Find a recipe that lists Italian sausage as an ingredient

i. Can you find one?

ii. Time taken (no more than 5 minutes):

iii. Search terms used:

iv. Did you consult help documentation? If so, was it helpful?

v. Subjective observations:

c. Find information about how to broil a fish

i. Can you find information?

ii. What form is this information in (recipe, article, video, etc.)?

iii. Time taken (no more than 5 minutes):

iv. Search terms used:

v. Did you consult help documentation? If so, was it helpful?

vi. Subjective observations:

d. Find scientific/storage/historical information about garlic

i. Can you find information?

ii. What form is this information in (recipe, article, video, etc.)?

iii. Time taken (no more than 5 minutes):

iv. Search terms used:

v. Did you consult help documentation? If so, was it helpful?

vi. Subjective observations:

2. Using only advanced search, perform the following tasks and record the requested information

a. Find a recipe for beef chili

i. Can you find one?

ii. Time taken (no more than 5 minutes):

iii. Search terms/parameters used:

iv. Did you consult help documentation? If so, was it helpful?

v. Subjective observations:

b. Find a recipe that lists cheddar cheese as an ingredient

i. Can you find one?

ii. Time taken (no more than 5 minutes):

iii. Search terms/parameters used:

iv. Did you consult help documentation? If so, was it helpful?

v. Subjective observations:

c. Find information about how to shuck an oyster

i. Can you find information?

ii. What form is this information in (recipe, article, video, etc.)?

iii. Time taken (no more than 5 minutes):

iv. Search terms/parameters used:

v. Did you consult help documentation? If so, was it helpful?

vi. Subjective observations:

d. Find scientific/storage/historical information about bananas

i. Can you find information?

ii. What form is this information in (recipe, article, video, etc.)?

iii. Time taken (no more than 5 minutes):

iv. Search terms/parameters used:

v. Did you consult help documentation? If so, was it helpful?

vi. Subjective observations:

3. Browsing only (no searching), perform the following tasks and record the requested information

a. Find a recipe for pizza

i. Can you find one?

ii. Time taken (no more than 5 minutes):

iii. Path followed:

- iv. Did you consult help documentation? If so, was it helpful?
- v. Subjective observations:
- b. Find a recipe that lists tomatoes as an ingredient
 - i. Can you find one?
 - ii. Time taken (no more than 5 minutes):
 - iii. Path followed:
 - iv. Did you consult help documentation? If so, was it helpful?
 - v. Subjective observations:
- c. Find information about how to knead bread
 - i. Can you find information?
 - ii. What form is this information in (recipe, article, video, etc.)?
 - iii. Time taken (no more than 5 minutes):
 - iv. Path followed:
 - v. Did you consult help documentation? If so, was it helpful?
 - vi. Subjective observations:
- d. Find scientific/storage/historical information about soy milk
 - i. Can you find information?
 - ii. What form is this information in (recipe, article, video, etc.)?
 - iii. Time taken (no more than 5 minutes):
 - iv. Path followed:
 - v. Did you consult help documentation? If so, was it helpful?
 - vi. Subjective observations:

Subjective Evaluation Questions

Interface Design

- 4. Is there basic search functionality? Is it easily identifiable and accessible?
- 5. Is there advanced search functionality? Is it easily identifiable and accessible?
- 6. Is there browsing functionality available? Is it easily identifiable and accessible?
- 7. Is the text easily readable?
- 8. Is the site available in multiple languages?
- 9. Is help documentation available? If so, how detailed is it? Is it easy to access?
- 10. Is a site map available? If so, is it clear and easy to understand?
- 11. Are links among pages well marked?
- 12. Is it always possible to understand one's position within the site?

13. Other subjective feedback regarding the design/layout of the site?

Content Breadth

14. Is information about the content available on the site? If so, what does it promise?

15. Are recipes user-submitted? From published sources? Both?

16. Is reference content other than recipes (nutritional information, encyclopedic ingredient information, cooking technique explanations, information about culinary traditions, articles, etc.) available? If so, what?

Metadata

17. What types of standard fields appear in each recipe record?

18. Is there any controlled vocabulary used?

19. Is user tagging available? Used?

20. Are there any other metadata standards used?

Collaborative Tools

21. Does the site offer user registration?

22. Are forums offered?

23. Is chat functionality offered?

24. Are other collaborative tools offered? If so, what?

Other tools

25. Are there any other unique tools or services (meal planning, recalculation of recipe based on servings, unit conversion, etc.) available that are noteworthy?

Evaluation: Allrecipes

Name of website: Allrecipes

URL: <http://allrecipes.com/>

Date of review: 20 May 2010

Task/goal-based Evaluation

Evaluation of search and browse functionality for end users – Each task should begin from the homepage

1. Using only basic search, perform the following tasks and record the requested information
 - a. Find a recipe for chocolate chip cookies
 - i. Can you find one? Yes (<http://allrecipes.com/Recipe/Basic-Chocolate-Chip-Cookies/Detail.aspx>)
 - ii. Time taken (no more than 5 minutes): 10 seconds
 - iii. Search terms used: chocolate chip cookies
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations:
 - b. Find a recipe that lists Italian sausage as an ingredient
 - i. Can you find one? Yes (<http://allrecipes.com/Recipe/Italian-Sausage-and-Vegetable-Roast/Detail.aspx>)
 - ii. Time taken (no more than 5 minutes): 10 seconds
 - iii. Search terms used: italian sausage
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations:
 - c. Find information about how to broil a fish
 - i. Can you find information? Not really. One article, [Healthful Ways to Cook Fish](http://allrecipes.com/HowTo/Healthful-Ways-to-Cook-Fish/Detail.aspx) (<http://allrecipes.com/HowTo/Healthful-Ways-to-Cook-Fish/Detail.aspx>), has a paragraph about the fact the broiling fish is a healthy alternative when grilling is not an option; but, there is no real information about the process. The recipes this article links to say to broil the fish but not how.
 - ii. What form is this information in (recipe, article, video, etc.)? The small amount of information appeared in an article.
 - iii. Time taken (no more than 5 minutes): 3 minutes
 - iv. Search terms used: broil fish* (article appeared after switching to 'articles' tab on search results page); how to broil fish
 - v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

vi. Subjective observations: This task required a lot of skimming of articles and recipes to find some sort of answer. In addition, the search results offered 'boil fish' as an alternative to my search 'broil fish'; a culinary-focused search should recognize that 'broil' is a valid culinary technique, and thus search term.

d. Find scientific/storage/historical information about garlic

i. Can you find information? Yes!! There are quite a few articles about garlic on the site: <http://allrecipes.com/HowTo/Garlic/Detail.aspx>; <http://allrecipes.com/HowTo/Peeling-Garlic/Detail.aspx>; <http://allrecipes.com/HowTo/Chopping-Garlic/Detail.aspx>; <http://allrecipes.com/HowTo/All-About-Garlic/Detail.aspx>; <http://allrecipes.com/HowTo/Glorious-Garlic/Detail.aspx>

ii. What form is this information in (recipe, article, video, etc.)? Mostly articles and tutorials

iii. Time taken (no more than 5 minutes): 10 seconds

iv. Search terms used: garlic (articles appeared after switching to 'articles' tab on search results page);

v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

vi. Subjective observations: While the tutorials contained quite a number of photos, videos might have been helpful.

2. Using only advanced search, perform the following tasks and record the requested information

a. Find a recipe for beef chili

i. Can you find one? Yes (<http://allrecipes.com/Recipe/Beefy-Beef-Chili/Detail.aspx>)

ii. Time taken (no more than 5 minutes): 15 seconds

iii. Search terms/parameters used: beef chili (all words)

iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

v. Subjective observations:

b. Find a recipe that lists cheddar cheese as an ingredient

i. Can you find one? Yes (<http://allrecipes.com/Recipe/Awesome-Grilled-Cheese-Sandwiches/Detail.aspx>)

ii. Time taken (no more than 5 minutes): 15 seconds

iii. Search terms/parameters used: cheddar cheese (ingredients I want)

iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

v. Subjective observations:

c. Find information about how to shuck an oyster

i. Can you find information? Yes (<http://allrecipes.com/HowTo/Shucking-Oysters/Detail.aspx>)

ii. What form is this information in (recipe, article, video, etc.)? Tutorial that includes steps

with pictures

- iii. Time taken (no more than 5 minutes): 1 minute
- iv. Search terms/parameters used: Site does not offer advanced search for anything but recipes. Performed an article search for: shuck oyster
- v. Did you consult help documentation? If so, was it helpful? I consulted help documentation after not finding an advanced search option for articles. This led me to the article search, which is a basic search only but unfortunately, the information about this search was under “How do I find a recipe?”
- vi. Subjective observations: Help documentation is hard to find from the main page of the site. It is in the page footer navigation as “Customer Support”.

d. Find scientific/storage/historical information about bananas

- i. Can you find information? No; retrieved a lot recipes but no articles about bananas
- ii. What form is this information in (recipe, article, video, etc.)?
- iii. Time taken (no more than 5 minutes): 5 minutes
- iv. Search terms/parameters used: banana
- v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- vi. Subjective observations:

3. Browsing only (no searching), perform the following tasks and record the requested information

a. Find a recipe for pizza

- i. Can you find one? Yes (<http://allrecipes.com/Recipe/Pizza-Without-the-Red-Sauce/Detail.aspx>)
- ii. Time taken (no more than 5 minutes): 45 seconds
- iii. Path followed: ‘Recipes’ tab ► Main Dish (side menu, under ‘courses’) ► Pizza and Calzones (side menu) ► Crowd-Pleasing Pizza Recipes ► Click on recipe (first result)
- iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- v. Subjective observations: Having to move between different locations on the site to drill down through the hierarchy is a bit annoying

b. Find a recipe that lists tomatoes as an ingredient

- i. Can you find one? Yes (<http://allrecipes.com/Recipe/Taco-Salad-I/Detail.aspx>)
- ii. Time taken (no more than 5 minutes): 45 seconds
- iii. Path followed: ‘Recipes’ tab ► Fruits and Vegetables (side menu, under ‘ingredients and methods’) ► Vegetables N-Z (side menu) ► Tomatoes (side menu) ► Click on recipe (first result)
- iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

- v. Subjective observations: It was a bit surprising that tomatoes appeared under vegetables instead of fruits, considering a tomato is a fruit. To cater to all audiences, I think that it should appear under both headings.
- c. Find information about how to knead bread
- i. Can you find information? Yes (<http://allrecipes.com/HowTo/Kneading-Dough/Detail.aspx>)
 - ii. What form is this information in (recipe, article, video, etc.)? Tutorial that includes steps with pictures
 - iii. Time taken (no more than 5 minutes): 1 minute
 - iv. Path followed: How-to Articles (side menu, under 'Popular Collections') ► Bread (side menu) ► How to Knead Bread (side menu) ► Click on article (first result)
 - v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - vi. Subjective observations:
- d. Find scientific/storage/historical information about soy milk
- i. Can you find information? No
 - ii. What form is this information in (recipe, article, video, etc.)?
 - iii. Time taken (no more than 5 minutes): 5 minutes
 - iv. Path followed:
 - v. Did you consult help documentation? If so, was it helpful? I did consult help documentation but it did not provide any useful information for the task at hand
 - vi. Subjective observations: I am surprised that there is no browsing interface for the site's non-how-to articles other than a simple alphabetical listing. Also, I thought about trying to find information via a recipe that uses soy milk but the ingredient is not in the 'ingredients and methods' lists; interesting neither are other dairy products (except cheese) or dairy alternatives. Lactose intolerance is also not a category under their healthy eating and allergy sections.

Subjective Evaluation Questions

Interface Design

4. Is there basic search functionality? Is it easily identifiable and accessible? Yes; it resides at the very top of the homepage. It is fairly straightforward and splits results among four categories: recipes, articles, collections and glossary.
5. Is there advanced search functionality? Is it easily identifiable and accessible? Yes; the advanced search functionality is accessible from the 'More' option above the basic search box on the homepage. It provides quite a number of options including free text entry of ingredient inclusion and exclusion; drop-down menus for utilizing various 'recipe features' such as meal type, cuisine, prep times and cooking method; check boxes to limit based on allergy and medical considerations and limiting by submitter/recipe provider.
6. Is there browsing functionality available? Is it easily identifiable and accessible? There are lots of browsing discovery options on the site, sometimes a bit too many. The main browsing navigation is

available in header and the left-hand side bar, a standard setup that makes locating it on the site a bit easier. In general, the provided categories for browsing ingredients in a hierarchical fashion are descriptive and easy-to-use, although not exhaustive. The how-to article browsing also works fairly well with similar structure and level of detail. Browsing for any of the other articles or glossary entries is nearly impossible.

7. Is the text easily readable? The main text is easily readable with good contrast; however, some of the buttons on the site suffer from a white-on-orange color scheme that is sometimes hard to read. The standard font may be a little small for some without good vision to read.
8. Is the site available in multiple languages? The site is available in array of other languages through site localization for: Argentina, Australia & New Zealand, Brazil, Canada, China, France, Germany, India, Japan, Mexico, Netherlands, Quebec, Russia, SE Asia, United Kingdom & Ireland and United States.

“How are the local...Allrecipes sites different from the original U.S. version? The home page has been enhanced to include a recipe of the day, newest photos, and cook of the week from your region. We have also provided deeper and broader content on the local recipe and community pages, and worked to customize the site navigation features to quickly guide you to the content that is most relevant for your visit.” (<http://allrecipes.com/Help/questions/faq/Localization.aspx>)

Interestingly, these localizations also provide slightly different header navigations and other ways to browse recipes, such as by photo and prep time.

9. Is help documentation available? If so, how detailed is it? Is it easy to access? Help documentation is provided on the site but it is hard to find. The help documentation is provided on a page titled ‘Customer Support’; nowhere on the homepage is it labeled as ‘help’. Most of the time, help documentation is only accessible from the ‘Customer Support’ link in the footer. Some page contain links to contextualized help documentation but usually under the guise of ‘tips’, most notably on the search page. The one exception is the ‘Help’ link in the ‘Servings’ section of recipes that links to information about the scaling feature. In general, the help documentation seems to be fairly well written and explanatory but somewhat poorly organized in that there is no search feature for the help section. Most help documentation is presented in the FAQ format, pertaining to particular pre-defined categories.
10. Is a site map available? If so, is it clear and easy to understand? A site map is persistently available from a link in the footer of every page. It is fairly easy to understand and laid out in a categorical fashion, separating recipe related pages from the rest of the sites sections.
11. Are links among pages well marked? The site designates links by changing the color of the font used. They are fairly obvious and their text is typically explanatory in nature.
12. Is it always possible to understand one’s position within the site? The site does a good job of orienting users to their position in the site using the now fairly standard breadcrumb navigation (not available when viewing a recipe)
13. Other subjective feedback regarding the design/layout of the site? Overall the site is very, very busy. There are a lot of small boxes of information jammed onto the screen, making it difficult to concentrate and sometimes to find the link or information you are looking for. The site could definitely benefit from a redesign that reduced the amount clutter.

Content Breadth

14. Is information about the content available on the site? If so, what does it promise? There is not direct information about the content of the site available in the help section.
15. Are recipes user-submitted? From published sources? Both? From exploring the site, it seems like the recipes come from user submission as well as four magazines (Taste of Home, Cooking for Two, Healthy Cooking and Simple and Delicious). Content from advertisers also seems to be included.
16. Is reference content other than recipes (nutritional information, encyclopedic ingredient information, cooking technique explanations, information about culinary traditions, articles, etc.) available? If so, what? Allrecipes offers a good deal of content besides the standard recipes, including:
 - a. How-to articles
 - b. Cooking tips/advice articles
 - c. Demonstration videos – both techniques and recipes
 - d. Glossary – From their help documentation: “[Glossary Search](#) allows you to search our food encyclopedia containing descriptions of more than 4,000 cooking terms and ingredients.” (<http://allrecipes.com/Help/questions/faq/findrecipe.aspx>) Sadly, their encyclopedia must contain very little information as it lacks information about common ingredients and techniques or the search functionality is broken and no browsing functionality is available.

Metadata

17. What types of standard fields appear in each recipe record?
 - a. Required:
 - i. Recipe Title (255 characters)
 - ii. Brief Description (600 characters)
 - iii. Ingredients (1800 characters)
 - iv. Directions (1800 characters)
 - v. Preparation Time
 - vi. Cooking Time
 - vii. Number of Servings
 - b. Optional:
 - i. Ready In
 - ii. Recipe Yield
 - iii. Footnotes (1200 characters)
 - iv. Photo
 - v. Rating
 - vi. Categorize Your Recipe (billed as tags but restricted to a pre-defined set of uncategorized labels dealing mostly with cuisine, course and specialized categories [kid-friendly, family,

quick and easy])

18. Is there any controlled vocabulary used? It looks as though the only controlled vocabulary used comes from the so-called ‘tags’ described in the last section. These are not presented in hierarchical or categorical fashion. Each recipe is limited to 5 such tags. I suspect these are used to organize the browsing and advanced search capabilities.
19. Is user tagging available? Used? Not in the typical sense of the word.
20. Are there any other metadata standards used? Not that I can tell.

Collaborative Tools

21. Does the site offer user registration? The site offers both free and paid user registration. Many options are available to both types of users; however, some advanced tools and services such as the “Kitchen-friendly View” recipe display, personalized recipe printing, a personal blogging platform, the ability to save customized recipes and the nutritional recipe search tool are only available to paid subscribers.
22. Are forums offered? No; not in the traditional sense. The “Recipe Exchange” (<http://allrecipes.com/Recipe-Exchange/Recipe-Requests.aspx>) probably comes closest to the forum concept
23. Is chat functionality offered? No.
24. Are other collaborative tools offered? If so, what? Yes
 - a. “Recipe Exchange” function (<http://allrecipes.com/help/questions/faq/community.aspx#request>)
 - b. Personal blogging with comment functionality
 - c. Recipe reviews

Other tools

25. Are there any other unique tools or services (meal planning, recalculation of recipe based on servings, unit conversion, etc.) available that are noteworthy?
 - a. Automated nutritional analysis (<http://allrecipes.com/help/recipeinfo/nutritioninfo.aspx>)
 - b. Recipe Box (<http://allrecipes.com/Help/Questions/FAQ/RecipeBox.aspx>): allows for storing, organizing, rating and adding notes to recipes as well as share recipes with other users (registration required)
 - c. Automated creation of shopping lists from recipes
 - d. Customized mobile page, mobile.allrecipes.com, (<http://allrecipes.com/Help/questions/faq/mobile.aspx>) and iPhone application (free and paid - <http://allrecipes.com/Help/questions/faq/iphone.aspx>)
 - e. Automated recipe scaling (ingredients only) based on number of desired number of servings and unit conversion (<http://allrecipes.com/help/recipeinfo/scaling.aspx>)

Evaluation: Epicurious

Name of website: Epicurious

URL: <http://www.epicurious.com/>

Date of review: 22 May 2010

Task/goal-based Evaluation

Evaluation of search and browse functionality for end users – Each task should begin from the homepage

1. Using only basic search, perform the following tasks and record the requested information
 - a. Find a recipe for chocolate chip cookies
 - i. Can you find one? Yes (<http://www.epicurious.com/recipes/food/views/Chocolate-Chip-Cookies-233014>)
 - ii. Time taken (no more than 5 minutes): 20 seconds
 - iii. Search terms used: chocolate chip cookies
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations: I was surprised to find that recipe for normal chocolate chip cookies was not the first in the results list.
 - b. Find a recipe that lists Italian sausage as an ingredient
 - i. Can you find one? Yes (<http://www.epicurious.com/recipes/food/views/Steamed-Clams-with-Spicy-Italian-Sausage-and-Fennel-240132>)
 - ii. Time taken (no more than 5 minutes): 10 seconds
 - iii. Search terms used: italian sausage
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations:
 - c. Find information about how to broil a fish
 - i. Can you find information? No; I was able to find recipes that do utilize broiling of fish and a short entry in the Food Dictionary about what broiling is.
 - ii. What form is this information in (recipe, article, video, etc.)?
 - iii. Time taken (no more than 5 minutes): 5 minutes
 - iv. Search terms used:
 - v. Did you consult help documentation? If so, was it helpful? I did consult help documentation. Their article on searching notes that the “quick search” searches articles, food recipes, drink recipes and member recipes (<http://www.epicurious.com/services/help/search>). This means that the Food Dictionary, which included the most relevant information, is not included in the basic search

- vi. Subjective observations:
- d. Find scientific/storage/historical information about garlic
 - i. Can you find information? Yes (<http://www.epicurious.com/articlesguides/seasonalcooking/farmtotable/visualguideoniongarlic>)
 - ii. What form is this information in (recipe, article, video, etc.)? article
 - iii. Time taken (no more than 5 minutes): 15 seconds
 - iv. Search terms used: garlic (article appeared after switching to ‘articles & guides’ tab on search results page)
 - v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - vi. Subjective observations:
- 2. Using only advanced search, perform the following tasks and record the requested information
 - a. Find a recipe for beef chili
 - i. Can you find one? Yes (<http://www.epicurious.com/recipes/food/views/Beef-Chili-with-Chipotle-Chilies-and-Cilantro-656>)
 - ii. Time taken (no more than 5 minutes): 30 seconds
 - iii. Search terms/parameters used: chili (main ingredient: beef)
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations: A link to the advanced search feature is persistently available, but is not located near the basic search box.
 - b. Find a recipe that lists cheddar cheese as an ingredient
 - i. Can you find one? Yes (<http://www.epicurious.com/recipes/food/views/Scottish-Sharp-Cheddar-Shortbread-236735>)
 - ii. Time taken (no more than 5 minutes): 20 seconds
 - iii. Search terms/parameters used: cheddar (main ingredient: cheese)
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations:
 - c. Find information about how to shuck an oyster
 - i. Can you find information? Yes (<http://www.epicurious.com/video/technique-videos/technique-videos-seafood/1915458785/seafood-how-to-open-oysters-and-clams/1915433367>) but not by using the advanced search
 - ii. What form is this information in (recipe, article, video, etc.)? video
 - iii. Time taken (no more than 5 minutes): 2 minutes

- iv. Search terms/parameters used: shuck oyster
- v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- vi. Subjective observations: The advanced search only searches recipes! I was eventually able to navigate to a video about opening oysters and clams by following a link to the instructional videos section from one of the recipes in the results list and then looking under the list of seafood related videos.

d. Find scientific/storage/historical information about bananas

- i. Can you find information? Yes (<http://www.epicurious.com/tools/fooddictionary/search?query=banana&submit.x=0&submit.y=0&submit=submit>) but not by using the advanced search
- ii. What form is this information in (recipe, article, video, etc.)? dictionary entry
- iii. Time taken (no more than 5 minutes): 4 minutes
- iv. Search terms/parameters used: banana
- v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- vi. Subjective observations: There were no contextual links from the recipes to other resources, such as the food dictionary that I eventually consulted for the information.

3. Browsing only (no searching), perform the following tasks and record the requested information

a. Find a recipe for pizza

- i. Can you find one? Yes (<http://www.epicurious.com/recipes/food/views/Truffled-Taleggio-and-Mushroom-Pizza-241997>)
- ii. Time taken (no more than 5 minutes): 1 ½ minutes
- iii. Path followed: 'browse' link ► Italian (main section, under 'cuisine') ► bake (side menu, under 'preparation method') ► cheese (side menu, under 'main ingredient') ► Click on recipe (second result)
- iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- v. Subjective observations: Finding this recipe took a decent amount of culinary knowledge; not very intuitive

b. Find a recipe that lists tomatoes as an ingredient

- i. Can you find one? Yes (<http://www.epicurious.com/recipes/food/views/Linguine-with-Baby-Heirloom-Tomatoes-and-Anchovy-Breadcrumbs-359250>)
- ii. Time taken (no more than 5 minutes): 10 seconds
- iii. Path followed: 'browse' link ► 'tomato' (main section, under 'main ingredient') ► Click on recipe (first result)
- iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

- v. Subjective observations:
- c. Find information about how to knead bread
- i. Can you find information? Yes
(<http://www.epicurious.com/articlesguides/howtocook/primers/breadbasicsteps#mix%20and%20knead>)
 - ii. What form is this information in (recipe, article, video, etc.)? article and video; part of Cooking Primer on Bread Basics
 - iii. Time taken (no more than 5 minutes): 3 minutes
 - iv. Path followed: 'how to cook' link (header, under 'Articles & Guides') ► cooking primers (side menu, under 'how to cook') ► Bread Primer (main section) ► Four ways to mix and knead (main section, under 'basic steps' on 'intro' tab)
 - v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - vi. Subjective observations: Finding the specific information took quite a bit of reading and clicks.
- d. Find scientific/storage/historical information about soy milk
- i. Can you find information? Yes (<http://www.epicurious.com/tools/fooddictionary/search?query=soy+milk&submit.x=0&submit.y=0&submit=submit>)
 - ii. What form is this information in (recipe, article, video, etc.)? dictionary entry
 - iii. Time taken (no more than 5 minutes): 30 seconds
 - iv. Path followed: 'Food Dictionary' link (right-hand column, under 'cook's tools') ► S ► soy milk
 - v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - vi. Subjective observations: Dictionary entry contains contextualized links to related terms in the Food Dictionary.

Subjective Evaluation Questions

Interface Design

4. Is there basic search functionality? Is it easily identifiable and accessible? Yes. It is easily identifiable and persistently available in the header of each page.
5. Is there advanced search functionality? Is it easily identifiable and accessible? There is advanced search functionality; however, it only searches recipes. While it is persistently available in the header of each page, it is difficult to locate as it is placed far from the basic search box.
6. Is there browsing functionality available? Is it easily identifiable and accessible? Yes. Major browsing categories are easily accessed and persistently available from the header of each page.
7. Is the text easily readable? The text is easily readable, although somewhat small at times.
8. Is the site available in multiple languages? No.

9. Is help documentation available? If so, how detailed is it? Is it easy to access? Yes; it is persistently available in the footer of each page. It is fairly detailed and well organized, if sparse.
10. Is a site map available? If so, is it clear and easy to understand? Yes; it is persistently available in the footer of each page. It is fairly extensive and easily understandable.
11. Are links among pages well marked? Some links are well marked by changes in font color and/or weight; however not all are well marked. Each page has a large number of links but they are not consistently formatted and easily identifiable. The linked text is self-explanatory.
12. Is it always possible to understand one's position within the site? No. The site makes superficial and inconsistent use of breadcrumb navigation.
13. Other subjective feedback regarding the design/layout of the site? The color scheme and formatting are, on the whole, pleasing and consistent; however the pages are highly segmented, making the pages look overly crowded.

Content Breadth

14. Is information about the content available on the site? If so, what does it promise? There is a short overview blurb in the help section that states: "We are happy to offer you the very best recipes, cooking features, and video how-tos on the Web."
15. Are recipes user-submitted? From published sources? Both? Both types of recipes are available. Epicurious offers recipes from a number of specific publications that are published or have been published by its parent company. These include: *Bon Appétit*, *Gourmet*, *SELF*, *Cookie*, and *Parade*. In addition, they have some recipes from professional chefs and cookbook authors.
16. Is reference content other than recipes (nutritional information, encyclopedic ingredient information, cooking technique explanations, information about culinary traditions, articles, etc.) available? If so, what? Yes.
 - a. Food Dictionary (<http://www.epicurious.com/tools/fooddictionary/>)
 - b. Articles & Guides (<http://www.epicurious.com/articlesguides/>)
 - c. Cooking Videos (<http://www.epicurious.com/video/>)
 - d. Cooking Primers (<http://www.epicurious.com/articlesguides/howtocook/primers>)

Metadata

17. What types of standard fields appear in each recipe record?
 - a. Required
 - i. public/private indicator
 - ii. recipe title
 - iii. ingredients (2000 characters)
 - iv. preparation instructions (2000 characters)
 - v. cuisine (multiple classifications allowed)
 - vi. main ingredient (multiple classifications allowed)
 - b. Optional

- i. introduction (1000 characters)
- ii. servings (number and unit)
- iii. type of dish
- iv. season/occasion (multiple classifications allowed)
- v. meal/course
- vi. preparation method
- vii. recipe category (multiple classifications allowed)
- viii. dietary consideration (multiple classifications allowed)

18. Is there any controlled vocabulary used? Yes. There are a number of custom classification systems that Epicurious employs: cuisine, main ingredient, type of dish, season/occasion, meal/course, preparation method, recipe category and dietary consideration. The coverage of each of these categories is pretty mixed. Some are quite extensive and some are not. It does not seem like any of these vocabularies is hierarchical.
19. Is user tagging available? Used? No; Epicurious bills their categorical classifications as tags.
20. Are there any other metadata standards used? Not that I can tell.

Collaborative Tools

21. Does the site offer user registration? Yes; registration is free and affords access to recipe saving, recipe annotations, recipe submission, recipe rating, recipe review user video submission and shopping list functionality.
22. Are forums offered? Yes (<http://www.epicurious.com/community/forums>)
23. Is chat functionality offered? Yes (<http://www.epicurious.com/community/chat>)
24. Are other collaborative tools offered? If so, what? Recipe ratings and review are available.

Other tools

25. Are there any other unique tools or services (meal planning, recalculation of recipe based on servings, unit conversion, etc.) available that are noteworthy?
- a. iPhone & iPad application (<http://www.epicurious.com/services/mobile>)
 - b. Newsletters (<http://www.epicurious.com/services/newsletters>)
 - c. Wine Pairings (<http://www.epicurious.com/services/winepairings>)
 - d. Seasonal Ingredient Map (<http://www.epicurious.com/articlesguides/seasonalcooking/farmtotable/seasonalingredientmap>)
 - e. Podcasts (<http://www.epicurious.com/services/podcasts>)
 - f. Measurement conversions (<http://www.epicurious.com/tools/conversions>)
 - g. Automated shopping list creation

Evaluation: RecipeSource

Name of website: RecipeSource

URL: <http://www.recipesource.com/>

Date of review: 21 May 2010

Task/goal-based Evaluation

Evaluation of search and browse functionality for end users – Each task should begin from the homepage

1. Using only basic search, perform the following tasks and record the requested information
 - a. Find a recipe for chocolate chip cookies
 - i. Can you find one? Yes (<http://www.recipesource.com/baked-goods/desserts/cookies/chocolate-chip/00/rec0001.html>)
 - ii. Time taken (no more than 5 minutes): 45 seconds
 - iii. Search terms used: chocolate chip cookies
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations: I was very surprised that a plain chocolate chip cookie recipe was not the first result. In fact, to get to a standard chocolate chip cookie recipe, I had to click on the eleventh result. Placing the search terms in quotation marks still did not yield a plain recipe as the first result; it appeared as the third result.
 - b. Find a recipe that lists Italian sausage as an ingredient
 - i. Can you find one? Yes (<http://www.recipesource.com/baked-goods/breads/italian-sausage1.html>)
 - ii. Time taken (no more than 5 minutes): 10 seconds
 - iii. Search terms used: italian sausage
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations: The search results contained recipes that included Italian sausage as well as recipes for Italian sausage. It is odd that in this basic search recipes for Italian sausage, titled things like “Italian Sausage” or “Italian Sausage 1”, did not appear as the first results in the list.
 - c. Find information about how to broil a fish
 - i. Can you find information? No
 - ii. What form is this information in (recipe, article, video, etc.)?
 - iii. Time taken (no more than 5 minutes): 1 minute
 - iv. Search terms used:
 - v. Did you consult help documentation? If so, was it helpful? The following statement appears in the site’s FAQ: “Can you send me background or historical information on this

food/culture? No. We collect and share recipes. You'll have to do research about the history and cultural backgrounds yourself. [Wikipedia](#) may be a good place to start.”

(<http://www.recipesource.com/admin/faq.html>)

vi. Subjective observations:

d. Find scientific/storage/historical information about garlic

i. Can you find information? No

ii. What form is this information in (recipe, article, video, etc.)?

iii. Time taken (no more than 5 minutes): 5 minutes

iv. Search terms used:

v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

vi. Subjective observations: I started scanning through recipes as I noticed that some had hints and tips but none that I could find pertaining to garlic.

2. Using only advanced search, perform the following tasks and record the requested information

a. Find a recipe for beef chili

i. Can you find one? Yes (<http://www.recipesource.com/soups/chili/chunky-beef1.html>)

ii. Time taken (no more than 5 minutes): 30 seconds

iii. Search terms/parameters used: Used provided Google full-text search: beef chili

iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

v. Subjective observations: Although there is an advanced search option linked to under the basic search box, the advanced search is severely limited. Two options are given:

1) Google full-text searching, utilizing normal Google basic search search syntax (<http://www.google.com/support/websearch/bin/answer.py?answer=136861>)

2) The simple recipe name search that I suspect is the normally offered basic search for the site with some additional explanations of possible syntax and a capping of maximum results per page option.

b. Find a recipe that lists cheddar cheese as an ingredient

i. Can you find one? Yes (<http://www.recipesource.com/soups/soups/cheddar1.html>)

ii. Time taken (no more than 5 minutes): 10 seconds

iii. Search terms/parameters used: Used provided Google full-text search: cheddar cheese

iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

v. Subjective observations:

c. Find information about how to shuck an oyster

i. Can you find information? No

- ii. What form is this information in (recipe, article, video, etc.)?
- iii. Time taken (no more than 5 minutes): 2 minutes
- iv. Search terms/parameters used: Used provided Google full-text search: shuck oyster
- v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- vi. Subjective observations: I scanned through recipe results of Google search but none contained information about oyster shucking.

d. Find scientific/storage/historical information about bananas

- i. Can you find information? No
- ii. What form is this information in (recipe, article, video, etc.)?
- iii. Time taken (no more than 5 minutes): 5 minutes
- iv. Search terms/parameters used: Used provided Google full-text search: banana
- v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- vi. Subjective observations: I scanned through recipe results of Google search but none contained information about bananas.

3. Browsing only (no searching), perform the following tasks and record the requested information

a. Find a recipe for pizza

- i. Can you find one? Yes (<http://www.recipesource.com/main-dishes/pizza/00/rec0075.html>)
- ii. Time taken (no more than 5 minutes): 15 seconds
- iii. Path followed: Main Dishes (side menu, under 'Browse by type') ► Pizza Recipes (main section) ► Alaska Seafood Pizza to Candy Shop Pizza (main section) ► Click on recipe (first result)
- iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- v. Subjective observations:

b. Find a recipe that lists tomatoes as an ingredient

- i. Can you find one? Yes
(<http://www.recipesource.com/fgv/vegetables/tomatoes/00/rec0034.html>)
- ii. Time taken (no more than 5 minutes): 20 seconds
- iii. Path followed: Fruits, Grains & Vegetables (side menu, under 'Browse by type') ► Vegetable Recipes (main section) ► Tomato Recipes (main section) ► (15) Sunday Tomatoes Sauteed With Chipotle to Garlicky Baked Tomatoes (main section) ► Click on recipe (first result)
- iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- v. Subjective observations: I am surprised that the 'Tomato Recipes' link does not fall under the

‘Fruit Recipes’ category or both the ‘Fruit Recipes’ and ‘Vegetable Recipes’ categories.

c. Find information about how to knead bread

- i. Can you find information? No
- ii. What form is this information in (recipe, article, video, etc.)?
- iii. Time taken (no more than 5 minutes): 5 minutes
- iv. Path followed: Baked Goods (side menu, under ‘Browse by type’) ► Breads (main section) ► Sourdough Bread Recipes (main section) & Whole-Wheat Breads (main section)
- v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- vi. Subjective observations: I again attempted to skim through many recipes that could have contained this information but to no avail.

d. Find scientific/storage/historical information about soy milk

- i. Can you find information? No
- ii. What form is this information in (recipe, article, video, etc.)?
- iii. Time taken (no more than 5 minutes): 3 minutes
- iv. Path followed:
- v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
- vi. Subjective observations: I’m surprised there isn’t a dairy-free or lactose-intolerant section under the ‘Restricted & Special Diets’ category.

Subjective Evaluation Questions

Interface Design

4. Is there basic search functionality? Is it easily identifiable and accessible? Yes; the basic search box is persistently available at the top of the left-hand side menu on every page.
5. Is there advanced search functionality? Is it easily identifiable and accessible? Although there is an advanced search option linked to under the basic search box, the advanced search is severely limited. Two options are given:
 - a. Google full-text searching, utilizing normal Google basic search search syntax (<http://www.google.com/support/websearch/bin/answer.py?answer=136861>)
 - b. The simple recipe name search that I suspect is the normally offered basic search for the site with some additional explanations of possible syntax and a capping of maximum results per page option.
6. Is there browsing functionality available? Is it easily identifiable and accessible? Browsing is available extensively from the homepage and from the left-hand side menu. The categories are self explanatory and pretty well established although not exhaustive. Most categorization focuses on cuisine and type of dish/main ingredient, although some categories based on utility (camping, gift ideas, holiday appropriateness) and dietary restrictions are available.

7. Is the text easily readable? The text is very easy to read and the uncluttered layout makes it easy to focus on the content offered. If anything, the interface is text-heavy.
8. Is the site available in multiple languages? No.
9. Is help documentation available? If so, how detailed is it? Is it easy to access? There is a very limited FAQ available that suffices for most questions, as the site and its functionality are not very complex.
10. Is a site map available? If so, is it clear and easy to understand? The site map is persistently available from the left-hand side menu and is, in fact, the homepage for the site.
11. Are links among pages well marked? The site designates links by changing the color of the font used. They are fairly obvious and their text is typically explanatory in nature.
12. Is it always possible to understand one's position within the site? The site does a good job of orienting users to their position in the site using the now fairly standard breadcrumb navigation.
13. Other subjective feedback regarding the design/layout of the site? I appreciate the cleaner look of the text-only site but this leads to lack of visual information for users to work off of, such as photos of completed recipes for comparison purposes.

Content Breadth

14. Is information about the content available on the site? If so, what does it promise? Yes; Between the About Us page (<http://www.recipesource.com/admin/>) and the FAQ (<http://www.recipesource.com/admin/faq.html>), it is clear that the aim of the site is to collect and share recipes only.
15. Are recipes user-submitted? From published sources? Both? The original collection of recipes stemmed from those collected by a single individual from newsgroups and mailing lists. Since then, readers have been able to submit recipes by email to the site.
16. Is reference content other than recipes (nutritional information, encyclopedic ingredient information, cooking technique explanations, information about culinary traditions, articles, etc.) available? If so, what? Not unless it is part of a submitted recipe.

Metadata

17. What types of standard fields appear in each recipe record? There is lack of consistency to the recipes housed by this site. It does seem that all recipes have, at minimum, a title, an ingredients list and directions. The format of these elements changes from record to record as does the inclusion of additional fields. Recipes have come from disparate sources and no effort has been made to completely standardize the content and formatting.
18. Is there any controlled vocabulary used? Recipes do seem to be categorized but it looks as though this is done manually by duplicating HTML recipe pages in the directory of the site.
19. Is user tagging available? Used? No.
20. Are there any other metadata standards used? Not that I can tell.

Collaborative Tools

21. Does the site offer user registration? No.
22. Are forums offered? No.

23. Is chat functionality offered? No.

24. Are other collaborative tools offered? If so, what? No.

Other tools

25. Are there any other unique tools or services (meal planning, recalculation of recipe based on servings, unit conversion, etc.) available that are noteworthy? No.

Evaluation: RecipeZaar

Name of website: RecipeZaar

URL: <http://www.recipezaar.com>

Date of review: 21 May 2010

Task/goal-based Evaluation

Evaluation of search and browse functionality for end users – Each task should begin from the homepage

1. Using only basic search, perform the following tasks and record the requested information
 - a. Find a recipe for chocolate chip cookies
 - i. Can you find one? Yes (<http://www.recipezaar.com/recipe/Canadian-Livings-Best-Chocolate-Chip-Cookies-4050>)
 - ii. Time taken (no more than 5 minutes): 20 seconds
 - iii. Search terms used: chocolate chip cookies
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations: I was surprised to find non-traditional recipes take the top spots. The result I used as my example was in third result. A recipe with the title “Chocolate Chip Cookies” took the seventh spot.
 - b. Find a recipe that lists Italian sausage as an ingredient
 - i. Can you find one? Yes (<http://www.recipezaar.com/recipe/Italian-Sausage-Soup-480>)
 - ii. Time taken (no more than 5 minutes): 10 seconds
 - iii. Search terms used: italian sausage
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations: I was surprised to see a recipe containing Italian sausage as an ingredient in the top spot of the results when there are recipes for Italian sausage in the database.
 - c. Find information about how to broil a fish
 - i. Can you find information? Not by using the basic search and not about fish specifically. What I can find eventually is <http://www.recipezaar.com/library/broil-479>
 - ii. What form is this information in (recipe, article, video, etc.)? Dictionary entry
 - iii. Time taken (no more than 5 minutes): 5 minutes
 - iv. Search terms used: broil fish, broil, cook fish, prepare fish
 - v. Did you consult help documentation? If so, was it helpful? I did consult help documentation extensively but it was only available in FAQ format and as a single board in the forums for customer support. Unfortunately, neither of these options provided search functionality. I could not find any relevant information about what is available through basic search. I did

happen upon a link in the footer to the “Kitchen Dictionary”, which contained a short entry on ‘broil’.

vi. Subjective observations:

d. Find scientific/storage/historical information about garlic

i. Can you find information? Not by using the basic search. I did find:

<http://www.recipezaar.com/library/broil-479>

ii. What form is this information in (recipe, article, video, etc.)? Dictionary entry

iii. Time taken (no more than 5 minutes): 5 minutes

iv. Search terms used:

v. Did you consult help documentation? If so, was it helpful?

vi. Subjective observations: I again found this very helpful information in the “Kitchen Dictionary”, which is not searchable from the basic search.

2. Using only advanced search, perform the following tasks and record the requested information

a. Find a recipe for beef chili

i. Can you find one? Yes (<http://www.recipezaar.com/recipe/Ground-Beef-Chili-36847>)

ii. Time taken (no more than 5 minutes): 5 minutes

iii. Search terms/parameters used: “beef chili”

iv. Did you consult help documentation? If so, was it helpful? I did consult help documentation. The FAQs provide no assistance with how to search for recipes.

v. Subjective observations: It seems that RecipeZaar lacks any advanced search function in the traditional sense. In the basic search, the user must restrict their search to ‘recipes’, ‘cookbooks’ (user-created), ‘ingredients’ and ‘members’. All searches have to start here. Further filtering and clarification of the search can then be undertaken.

b. Find a recipe that lists cheddar cheese as an ingredient

i. Can you find one? Yes (<http://www.recipezaar.com/recipe/crooks-corner-shrimp-and-grits-426673>)

ii. Time taken (no more than 5 minutes): 20 seconds

iii. Search terms/parameters used: Searched in ingredients: cheddar cheese; choose ‘cheddar cheese’ from list of “Top 50 recipe ingredients” with which I was presented.

iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

v. Subjective observations:

c. Find information about how to shuck an oyster

i. Can you find information? No.

ii. What form is this information in (recipe, article, video, etc.)?

iii. Time taken (no more than 5 minutes): 5 minutes

- iv. Search terms/parameters used:
 - v. Did you consult help documentation? If so, was it helpful?
 - vi. Subjective observations: None of the recipes I looked through seemed to have information on the topic, nor did the “Kitchen Dictionary”. The forum topic “Cooking Q&A” might have valuable information but there is no search functionality.
- d. Find scientific/storage/historical information about bananas
- i. Can you find information? Not by using the search functionality.
(<http://www.recipezaar.com/library/banana-61>)
 - ii. What form is this information in (recipe, article, video, etc.)? Dictionary entry
 - iii. Time taken (no more than 5 minutes): 10 seconds
 - iv. Search terms/parameters used:
 - v. Did you consult help documentation? If so, was it helpful?
 - vi. Subjective observations: I gave up on the search and skipped directly to the “Kitchen Dictionary”
3. Browsing only (no searching), perform the following tasks and record the requested information
- a. Find a recipe for pizza
- i. Can you find one? Yes (<http://www.recipezaar.com/recipe/cheddary-barbeque-chicken-pizza-426463>)
 - ii. Time taken (no more than 5 minutes): 1 minute
 - iii. Path followed: ‘Recipes’ tab ► Course (main section) ► main dish (main section) ► All Main Dish Categories... (main section) ► Pizza (in recipe sifter, under ‘course’ under ‘Main Dish’) ► Click ‘Show Recipes’ button (in recipe sifter) ► Click on recipe (first result)
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - v. Subjective observations: The browsing functionality is unnecessarily complicated. There should be seamless integration of browsing through the same interface rather than switching to the “recipe sifter” after two levels of drilling.
- b. Find a recipe that lists tomatoes as an ingredient
- i. Can you find one? Yes (<http://www.recipezaar.com/recipe/danish-feta-cheese-broiled-tomatoes-426608>)
 - ii. Time taken (no more than 5 minutes): 30 seconds
 - iii. Path followed: ‘Recipes’ tab ► Click on 'Open the Recipe Sifter Tool' ► Tomatoes (in recipe sifter, under ‘main ingredient’ under ‘Vegetables’) ► Click ‘Show Recipes’ button (in recipe sifter) ► Click on recipe (first result)
 - iv. Did you consult help documentation? If so, was it helpful? I did not consult help documentation

- v. Subjective observations: I was very surprised not to see tomatoes listed under their 'ingredient' heading in the main browsing start section on the 'Recipes' tab. Again, tomatoes only appear under the 'Vegetables' category, instead of under 'Fruits' or both categories.
- c. Find information about how to knead bread
- i. Can you find information? No.
 - ii. What form is this information in (recipe, article, video, etc.)?
 - iii. Time taken (no more than 5 minutes): 3 minutes
 - iv. Path followed:
 - v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - vi. Subjective observations: I was unable to find information about kneading, even in the "Kitchen Dictionary"
- d. Find scientific/storage/historical information about soy milk
- i. Can you find information? Yes (<http://www.recipezaar.com/library/soymilk-561>)
 - ii. What form is this information in (recipe, article, video, etc.)? Dictionary entry
 - iii. Time taken (no more than 5 minutes): 15 seconds
 - iv. Path followed: Kitchen Dictionary (linked to in footer) ► S ► soymilk
 - v. Did you consult help documentation? If so, was it helpful? I did not consult help documentation
 - vi. Subjective observations:

Subjective Evaluation Questions

Interface Design

4. Is there basic search functionality? Is it easily identifiable and accessible? Yes. It is easily identifiable and persistently available in the header of each page.
5. Is there advanced search functionality? Is it easily identifiable and accessible? Not in the usual sense. All searching starts from the basic search functionality. The results can then be further narrowed down using the "Recipe Sifter" and the predefined categories.
6. Is there browsing functionality available? Is it easily identifiable and accessible? There is browsing functionality available. Unfortunately, it is not very user friendly, lacking a central location on the page and only allowing drilling through the standardized taxonomy by two layers. After this point, one has to use the "Recipe Sifter" to narrow the results further.
7. Is the text easily readable? In general, the text is fairly easy to read, dark on a light background. There is a lot of variation in color schemes and text-sizes, though; making some text too small for some users to easily read and the page feel very busy.
8. Is the site available in multiple languages? No.
9. Is help documentation available? If so, how detailed is it? Is it easy to access? Help documentation is available in two formats, FAQs and a forum. Neither of these forms can be searched and the

FAQs are fairly poorly organized. Overall, they are of little to no help.

10. Is a site map available? If so, is it clear and easy to understand? A site map is persistently available from a link in the footer of every page; however, the site map only links out to recipe categories.
11. Are links among pages well marked? The site designates links using a change in text color. The linked text is fairly self-explanatory.
12. Is it always possible to understand one's position within the site? Navigation on this site is horrible. The site lacks breadcrumb navigation.
13. Other subjective feedback regarding the design/layout of the site? The site is very, very busy. There are a lot of ads and the pages are split up into too many sections. The overuse of heading levels with a variety of font sizes also leads to a very choppy website.

Content Breadth

14. Is information about the content available on the site? If so, what does it promise? There is no explicit statement of the content of the site. From my exploration of it, I would say that its main focus is on recipes and the exchange thereof. The site does also offer some peripheral information such as its "Kitchen Dictionary" and automatic nutritional analysis of recipes.
15. Are recipes user-submitted? From published sources? Both? I cannot find explicit information about the recipe sources, it seems that all the recipes are user-submitted.
16. Is reference content other than recipes (nutritional information, encyclopedic ingredient information, cooking technique explanations, information about culinary traditions, articles, etc.) available? If so, what? There is some non-recipe information provided including the "Kitchen Dictionary" and automatically calculated nutritional data for recipes. The site also has a blog, "Eater's Digest", which has occasional articles on food-related topics.

Metadata

17. What types of standard fields appear in each recipe record?
 - a. recipe title
 - b. recipe description
 - c. ingredients
 - d. directions
 - e. servings
 - f. yield
 - g. preparation time
 - h. cooking time
 - i. categories
 - i. user-selectable pre-defined categories
 - ii. auto-selected pre-defined categories based on other data
18. Is there any controlled vocabulary used? Yes; there are a variety of categorizations available that are either user-selected or auto-selected but all pre-defined hierarchical vocabularies. The first

level of classification contains the following categories:

- a. course
- b. main ingredient
- c. cuisine
- d. preparation
- e. occasion
- f. diet

19. Is user tagging available? Used? No.

20. Are there any other metadata standards used? Not that I can tell.

Collaborative Tools

21. Does the site offer user registration? Yes.

22. Are forums offered? Yes. Although they are not searchable. Includes some dedicated boards for general assistance with cooking and recipe request/exchange.

23. Is chat functionality offered? Yes, through an external, non-integrated service.

24. Are other collaborative tools offered? If so, what? Yes; recipe reviews.

Other tools

25. Are there any other unique tools or services (meal planning, recalculation of recipe based on servings, unit conversion, etc.) available that are noteworthy?

- a. Users are able to create and share custom online cookbooks (collections/sets of recipes in RecipeZaar). Similar functionality exists for menus.
- b. Measurement converter (<http://www.recipezaar.com/library/calc.zsp>)
- c. Automated shopping list creation from recipes

Appendix B: Dublin

Core Application

Profile

DC-rec Application Profile

Creator: Chad Morris

Date Modified: 2010 May 30

Document Status: Draft

Description: This document is an application profile that specifies the use of Dublin Core in recibrary.

Introduction

This document is an application profile that specifies the use of Dublin Core in recibrary. The DC-rec Application Profile is based on the metadata terms maintained by the Dublin Core Metadata Initiative and is presented following the [Dublin Core Application Profile Guidelines](#) produced by the [CEN MMI-DC Workshop](#). This application profile incorporates many of the best practice recommendations of the [DC-Library Application Profile](#) as created by the DCMI-Libraries Working Group. It incorporates the use of encoding schemes under development by recibrary.

Namespaces and Format of entries

The DC-recibrary Application Profile uses terms from two namespaces:

- DCMI Metadata Terms [<http://dublincore.org/documents/dcmi-terms/>]
- MODS elements used in DC-Lib Application Profile [<http://www.loc.gov/mods>]

Format of entries:

This application profile is presented following the [Dublin Core Application Profile Guidelines](#) produced by the [CEN MMI-DC Workshop](#).

Name of term	A unique token assigned to the term
Term URI	A Uniform Resource Identifier used to identify the term
Label	A human-readable label assigned to the term
Defined By	An identifier of a namespace, pointer to a schema or bibliographic reference for a document within which the term is defined
Source Definition	The statement, as found in the namespace in which the term originated, that represents the concept and essential nature of the term
DC-rec Definition	The DC-rec statement that represents the concept and essential nature of the term
Source Comments	Additional information about the term and its application from the namespace in which the term originated
DC-rec Comments	DC-rec comments about the term and its application

Type of term	A grammatical category of the term (e.g., “Element”, “Element Refinement” or “Encoding Scheme”)
Refines	The described term semantically refines the referenced term. A refinement makes the meaning of the element narrower or more specific. It will share the meaning of the unrefined element but with a more restricted scope.
Refined By	The described term is semantically refined by the referenced term
Encoding Scheme For	The described term, an Encoding Scheme, qualifies the referenced term
Has Encoding Scheme	The described term is qualified by the referenced Encoding Scheme. Using an encoding scheme will aid in the interpretation of an element value. These schemes include controlled vocabularies and formal notations or parsing rules. A value expressed using an encoding scheme will thus be a token selected from a controlled vocabulary (e.g., a term from a classification system or set of subject headings) or a string formatted in accordance with a formal notation (e.g., "2000-01-01" as the standard expression of a date). If an encoding scheme is not understood by a client or agent, the value may still be useful to a human reader.
Obligation	Indicates whether the element is required to always or sometimes be present. In this application profile the obligation can be: mandatory (M), mandatory if applicable (MA) or optional (O). Mandatory ensures that some of the elements are always supported and mandatory if applicable means that this element must be supported if the information is available. An element with a mandatory obligation must have a value. The optional elements should be filled with a value if the information is appropriate to the given resource but if not, they may be omitted.
Occurrence	Indicates any limit to the repeatability of the element

Table of Contents

elements:	audience, contributor, coverage, creator, date, description, edition, format, identifier, language, location, publisher, relation, rights, source, subject, title, type
refinements:	abstract, alternative, available, bibliographicCitation, created, dateCaptured, dateCopyrighted, extent, hasFormat, hasPart, isFormatOf, isPartOf, isReferencedBy, isReplaceBy, issued, isVersionOf, medium, modified, references, replaces, requires, spatial, tableOfContents, temporal, valid
encoding schemes:	Box, DCMIType, DDC, DOI, IMT, ISBN, ISO15511-3, ISO693-2,

ISO8601, ISSN, LCC, LCSH, MARCAudience, MARCOrg, MARCRelators, Period, Recicourse, Recicuisine, Recimeal, RFC3066, SICI, TGN, UDC, URI

General Notes:

- Either a Title or Identifier are mandatory; Identifier is mandatory if applicable.
- If the record is expressed in a format (e.g., HTML) that allows each element/qualifier/scheme value to be assigned a language attribute (e.g., the HTML tag lang="en"), the use of the attribute is permitted for any or all DC elements as desired.
- All elements may be used as unqualified, except where noted.
- Where applicable a table has been created for each encoding scheme in a separate section following the main body of tables for elements and refinements.

DC-rec Application Profile

elements and refinements

Name of term	title
Term URI	http://purl.org/dc/elements/1.1/title
Label	Title
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A name given to the resource
DC-rec Definition	
Source Comments	Typically, a title will be a name by which the resource is formally known.
DC-rec Comments	<p>A parallel/transliterated title is considered a main title (i.e. the Title element is repeated).</p> <p>Either a title or identifier is mandatory. If no title is available, best practice is to give a constructed title, derive a title from the resource or supply <i>[no title]</i>. If using qualified Dublin Core, an element refinement for titles other than the main title(s) should be included.</p> <p>Retain initial articles and use local sorting algorithms based on language. A language qualifier may be used to indicate language of title if appropriate. Capitalize only the first letter of the first word of the title and of any proper names contained within the title.</p>
Type of term	element
Refines	

Refined By	Alternative
Has Encoding Scheme	
Obligation	M
Occurrence	

Name of term	alternative
Term URI	http://purl.org/dc/terms/alternative
Label	Alternative
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Any form of the title used as a substitute or alternative to the formal title of the resource.
DC-rec Definition	
Source Comments	This qualifier can include Title abbreviations as well as translations.
DC-rec Comments	Assigned title such as uniform or key title or acronym is Alternative. Best practice is to use this element refinement for titles other than the main title. Retain initial articles and use local sorting algorithms based on language. A language qualifier may be used to indicate language of title if appropriate. Capitalize only the first letter of the first word of the title and of any proper names contained within the title.
Type of term	element refinement
Refines	Title
Refined By	
Has Encoding Scheme	
Obligation	MA
Occurrence	

Name of term	creator
Term URI	http://purl.org/dc/elements/1.1/creator
Label	Creator

Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	An entity primarily responsible for making the content of the resource.
DC-rec Definition	
Source Comments	Examples of a Creator include a person, an organisation, or a service. Typically, the name of a Creator should be used to indicate the entity.
DC-rec Comments	<p>This term should not be refined with a role. A subset of terms taken from the Library of Congress list of Relators should be used as role refinements for Contributor (http://www.loc.gov/marc/sourcecode/relator/relatorlist.html)</p> <p>Entities with a secondary role should be entered under Contributor. For personal names, input last name followed by first name. For corporate bodies, input the name in direct order.</p> <p>Creator and Contributor may be conflated with Creator being used as a refinement of Contributor.</p>
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	
Obligation	O
Occurrence	

Name of term	contributor
Term URI	http://purl.org/dc/elements/1.1/contributor
Label	Contributor
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	An entity responsible for making contributions to the content of the resource.
DC-rec Definition	
Source Comments	Examples of a Contributor include a person, an organisation, or a service. Typically, the name of a Contributor should be used to indicate the entity.

DC-rec Comments	A subset of terms taken from the Library of Congress list of Relators should be used as role refinements for Contributor (http://www.loc.gov/marc/sourcecode/relator/relatorlist.html). Creator and Contributor may be conflated with Creator being used as a refinement of Contributor.
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	MARC Relator and Role Code and Term Source Codes (http://www.loc.gov/marc/sourcecode/relator/relatorlist.html)
Obligation	MA
Occurrence	

Name of term	publisher
Term URI	http://purl.org/dc/elements/1.1/publisher
Label	Publisher
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	An entity responsible for making the resource available.
DC-rec Definition	
Source Comments	Examples of a Publisher include a person, an organisation, or a service. Typically, the name of a Publisher should be used to indicate the entity.
DC-rec Comments	A subset of terms taken from the Library of Congress list of Relators should be used as role refinements for Publisher if applicable (http://www.loc.gov/marc/sourcecode/relator/relatorlist.html). If the publisher is the same as the Creator or Contributor, enter the name or entity in both elements.
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	MARC Relator and Role Code and Term Source Codes (http://www.loc.gov/marc/sourcecode/relator/relatorlist.html)

Obligation	MA
Occurrence	

Name of term	subject
Term URI	http://purl.org/dc/elements/1.1/subject
Label	Subject
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The topic of the content of the resource.
DC-rec Definition	
Source Comments	Typically, a Subject will be expressed as keywords, key phrases or classification codes that describe a topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.
DC-rec Comments	If a geographic or temporal aspect is recorded use the element Coverage. If there is a subject string with elements in addition to a geographic aspect, include the entire string in Subject with geographic element also in Coverage.
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	As many of the following classification schemes as are applicable to a given resource should be used: Library of Congress Subject Headings (http://purl.org/dc/terms/LCSH) Dewey Decimal Classification (http://purl.org/dc/terms/DDC) Library of Congress Classifications (http://purl.org/dc/terms/LCC) Universal Decimal Classification (http://purl.org/dc/terms/UDC) reciCuisine (under construction) reciCourse (under construction) reciMeal (under construction)
Obligation	M
Occurrence	Subject may be repeated for each encoding scheme used and each valid classification thereof.

Name of term	description
Term URI	http://purl.org/dc/elements/1.1/description
Label	Description
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	An account of the content of the resource.
DC-rec Definition	
Source Comments	Description may include but is not limited to: an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content.
DC-rec Comments	<p>The Description is used to help the user decide if a resource is worth consulting. Information about the system requirements (e.g., software/hardware such as Acrobat Reader; QuickTime, RealPlayer, PostScript) or access mode (e.g., world wide web, ftp via the Internet) may be included in the Description. A textual description of the nature of the language may also be included in the Description element. (Example: In Korean and English, in parallel columns).</p> <p>It is permitted to link one or more external descriptions using a URI, but to facilitate keyword indexing of the content of the description, it is recommended that a text description also be included.</p>
Type of term	element
Refines	
Refined By	Abstract, Table of Contents
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI)
Obligation	MA
Occurrence	

Name of term	abstract
Term URI	http://purl.org/dc/terms/abstract
Label	Abstract
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	An account of the content of the resource.

DC-rec Definition	
Source Comments	
DC-rec Comments	Use text (and not only a URL) to describe the resource.
Type of term	element refinement
Refines	Description
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI)
Obligation	MA
Occurrence	

Name of term	tableOfContents
Term URI	http://purl.org/dc/terms/tableOfContents
Label	Table of Contents
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A list of subunits of the content of the resource
DC-rec Definition	
Source Comments	
DC-rec Comments	Use text (and not only a URL) to describe the resource.
Type of term	element refinement
Refines	Description
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI)
Obligation	MA
Occurrence	

Name of term	date
Term URI	http://purl.org/dc/elements/1.1/date

Label	Date
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A date associated with an event in the life cycle of the resource.
DC-rec Definition	
Source Comments	Typically, date will be associated with the creation or availability of the resource. Recommended best practice for encoding the date value is defined in a profile of ISO 8601 [W3CDTF] and follows the YYYY-MM-DD format.
DC-rec Comments	recibrary does not permit an unqualified Date. ISO 8601 is the approved standard for encoding dates. A resource may have several associated dates such as creation date, issued date, and copyright date. These associated dates should be noted using element refinements. Modified should be used only for the date the resource was modified; do not use for the date on which a metadata record was changed.
Type of term	element
Refines	
Refined By	Created, Valid, Available, Issued, Modified, Date Copyrighted, Date Captured
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	MA
Occurrence	

Name of term	created
Term URI	http://purl.org/dc/terms/created
Label	Created
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Date of creation of the resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use for the creation of the intellectual content.

Type of term	element refinement
Refines	Date
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	MA
Occurrence	This qualified element should not repeat.

Name of term	valid
Term URI	http://purl.org/dc/terms/valid
Label	Valid
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Date (often a range) of validity of the resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	
Type of term	element refinement
Refines	Date
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	O
Occurrence	

Name of term	available
Term URI	http://purl.org/dc/terms/available
Label	Available
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Date (often a range) that the resource will become or did become available.

DC-rec Definition	
Source Comments	
DC-rec Comments	
Type of term	element refinement
Refines	Date
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	O
Occurrence	

Name of term	issued
Term URI	http://purl.org/dc/terms/issued
Label	Issued
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Date of formal issuance (e.g. publication) of the resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	Date that the resource was issued by the Publisher. Use for the instantiation.
Type of term	element refinement
Refines	Date
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	MA
Occurrence	

Name of term	modified
Term URI	http://purl.org/dc/terms/modified

Label	Modified
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Date on which resource was changed.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use for most recent modification of intellectual content.
Type of term	element refinement
Refines	Date
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	MA
Occurrence	

Name of term	dateCopyrighted
Term URI	http://purl.org/dc/terms/dateCopyrighted
Label	Date Copyrighted
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Date of copyright statement.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use if the value is different from Issued or Created or if the copyright date is known but no value is supplied for Issued or Created. If same date is used issued and copyright date, use Issued.
Type of term	element refinement
Refines	Date
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	O

Occurrence	
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Name of term	dateCaptured
Term URI	http://www.loc.gov/mods/
Label	Date Captured
Defined By	
Source Definition	
DC-rec Definition	Date that the resource was captured.
Source Comments	
DC-rec Comments	This includes the date that a snapshot of the resource was taken (particularly for dynamic resources) if different from Created. Use existing element <dateCaptured> under <originInfo> in the Metadata Object Description Schema .
Type of term	element refinement
Refines	Date
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601)
Obligation	MA
Occurrence	

Name of term	type
Term URI	http://purl.org/dc/elements/1.1/type
Label	Resource Type
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The nature or genre of the content of the resource.
DC-rec Definition	
Source Comments	Type includes terms describing general categories, functions, genres, or aggregation levels for content. Recommended best practice is to select a value from a controlled vocabulary (for example, the list of DCMI Types). To describe the physical or digital manifestation of the resource, use the Format element.

DC-rec Comments	To describe the physical or digital manifestation of the resource, use Format.
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	DCMI Type Vocabulary (http://purl.org/dc/dcmitype/)
Obligation	MA
Occurrence	

Name of term	format
Term URI	http://purl.org/dc/elements/1.1/format
Label	Format
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The physical or digital manifestation of the resource.
DC-rec Definition	
Source Comments	Typically, Format may include the media-type or dimensions of the resource. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource. Examples of dimensions include size and duration. Recommended best practice is to select a value from a controlled vocabulary (for example, the list of Internet Media Types [MIME] defining computer media formats).
DC-rec Comments	Use MIME Media Types list maintained by IANA: http://www.iana.org/assignments/media-types/
Type of term	element
Refines	
Refined By	Extent, Medium
Has Encoding Scheme	Internet Media Type (http://purl.org/dc/terms/IMT)
Obligation	MA
Occurrence	

Name of term	extent
Term URI	http://purl.org/dc/terms/extent
Label	Extent
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The size or duration of the resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	
Type of term	element refinement
Refines	Format
Refined By	
Has Encoding Scheme	
Obligation	MA
Occurrence	

Name of term	medium
Term URI	http://purl.org/dc/terms/medium
Label	Medium
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The material or physical carrier of the resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use MIME Media Types list maintained by IANA: http://www.iana.org/assignments/media-types/
Type of term	element refinement
Refines	Format
Refined By	
Has Encoding Scheme	Internet Media Type (http://purl.org/dc/terms/IMT)

Obligation	MA
Occurrence	

Name of term	identifier
Term URI	http://purl.org/dc/elements/1.1/identifier
Label	Identifier
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	An unambiguous reference to the resource within a given context.
DC-rec Definition	
Source Comments	Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. Example of formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator (URL)), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN).
DC-rec Comments	<p>Either a title or identifier is mandatory.</p> <p><i>Standard identifier:</i> Provide at least one standard identifier from a standard scheme (e.g., URL, ISBN, etc.) if one or more standard identifiers have been assigned to the resource and are known.</p> <p><i>Unique-resource identifier:</i> Provide applicable identifiers assigned to one-of-a-kind resources (such as accession numbers assigned to items in a museum collection) if one or more of this class of identifiers have been assigned to the resource and are known. If the structure of the identifier (e.g., all numerals) is potentially ambiguous prepend the associated agencies' name in bracket to the identifier element.</p> <p><i>Citation:</i> Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described.</p>
Type of term	element
Refines	
Refined By	Bibliographic Citation
Has Encoding Scheme	<p>URI (http://purl.org/dc/terms/URI)</p> <p>If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object</p>

	Identifier).
Obligation	MA
Occurrence	

Name of term	bibliographicCitation
Term URI	http://purl.org/dc/terms/bibliographicCitation
Label	Bibliographic Citation
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A bibliographic reference for the resource.
DC-rec Definition	
Source Comments	Recommended practice is to include sufficient bibliographic detail to identify the resource as unambiguously as possible, whether or not the citation is in a standard form.
DC-rec Comments	Use Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Identifier
Refined By	
Has Encoding Scheme	
Obligation	O
Occurrence	

Name of term	source
Term URI	http://purl.org/dc/elements/1.1/source
Label	Source
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A Reference to a resource from which the present resource is derived.

DC-rec Definition	
Source Comments	The present resource may be derived from the Source resource in whole or in part. Recommended best practice is to reference the Source resource by means of a string or number conforming to a formal identification system.
DC-rec Comments	Use only when the described resource is the result of digitization of non-digital originals. Otherwise, use Relation. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	

Name of term	language
Term URI	http://purl.org/dc/elements/1.1/language
Label	Language
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A language of the intellectual content of the resource.
DC-rec Definition	
Source Comments	Recommended best practice is to use RFC 3066 [RFC3066], which, in conjunction with ISO 639 [ISO639], defines two- and three-letter primary language tags with optional subtags. Examples include "en" or "eng" for English, "akk" for Akkadian, and "en-GB" for English used in the United Kingdom

DC-rec Comments	Language code may be used as a value for the Language qualifier to any DCMES element. Mandatory if applicable means if there is any spoken or written text, supply Language.
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	ISO 639-2 (http://lcweb.loc.gov/standards/iso639-2/englangn.html); RFC 3066 'Tags for the Identification of Languages' (http://tools.ietf.org/html/rfc3066) [Note: When a language in ISO 639 has both a two-letter and three-letter code, use the two-letter code; when it has only a three-letter code, use the three-letter code.]
Obligation	MA
Occurrence	Language may be repeated for each encoding scheme used.

Name of term	relation
Term URI	http://purl.org/dc/elements/1.1/relation
Label	Relation
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A reference to a related resource.
DC-rec Definition	
Source Comments	Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.
DC-rec Comments	A reference to a related resource such as an adaptation, translation or derivation of another resource. Described resource is a version, adaptation, translation or derivation of the referenced resource. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element
Refines	

Refined By	Is Version Of, Is Format Of, Has Format, Is Replaced By, Replaces, Is Part Of, Has Part, Requires, Is Referenced By, References
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	

Name of term	isVersionOf
Term URI	http://purl.org/dc/terms/isVersionOf
Label	Is Version Of
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource is a version, edition, or adaptation of the referenced resource. Changes in version implies substantive changes in content rather than differences in format.
DC-rec Definition	
Source Comments	
DC-rec Comments	Do not include qualifier HasVersion, since this implies that it is clear which came first. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).

Obligation	MA
Occurrence	

Name of term	isFormatOf
Term URI	http://purl.org/dc/terms/isFormatOf
Label	Is Format Of
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource is the same intellectual content of the referenced resource, but presented in another format.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use when there are alternative formats and it is not clear which preceded the other. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	

Name of term	hasFormat
Term URI	http://purl.org/dc/terms/hasFormat
Label	Has Format

Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource pre-existed the referenced resource, which is essentially the same intellectual content presented in another format.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use only when the described resource references alternative physical formats. Example is the metadata for a home page for a dissertation that references that dissertation in various alternative formats (e.g. PDF, Postscript, etc.) Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	

Name of term	isReplaceBy
Term URI	http://purl.org/dc/terms/isReplacedBy
Label	Is Replaced By
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource is supplanted, displaced, or superceded by the referenced resource.
DC-rec Definition	
Source Comments	

DC-rec Comments	Used for succeeding version. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	

Name of term	replaces
Term URI	http://purl.org/dc/terms/replaces
Label	Replaces
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource supplants, displaces, or supersedes the referenced resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	Used for preceding version. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement

Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	

Name of term	isPartOf
Term URI	http://purl.org/dc/terms/isPartOf
Label	Is Part Of
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource is a physical or logical part of the referenced resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use when documents in hand are parts of "host documents" (e.g. journal, monographic series) and when there is no citation information in Identifier. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object

	Identifier).
Obligation	MA
Occurrence	

Name of term	hasPart
Term URI	http://purl.org/dc/terms/hasPart
Label	Has Part
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource includes the referenced resource either physically or logically.
DC-rec Definition	
Source Comments	
DC-rec Comments	Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	Has Part may be repeated for each part.

Name of term	requires
Term URI	http://purl.org/dc/terms/requires
Label	Requires

Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource requires the referenced resource to support its function, delivery, or coherence of content.
DC-rec Definition	
Source Comments	
DC-rec Comments	Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	Requires may be repeated for each required resource.

Name of term	isReferencedBy
Term URI	http://purl.org/dc/terms/isReferencedBy
Label	Is Referenced By
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource is referenced, cited or otherwise pointed to by the referenced resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use to link to a major reviews, criticisms or assessing essay. Not used to include all references from the bibliography of the described resource.

	Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement
Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	Is Referenced By may be repeated for each valid referral.

Name of term	references
Term URI	http://purl.org/dc/terms/references
Label	References
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The described resource references, cites, or otherwise points to the referenced resource.
DC-rec Definition	
Source Comments	
DC-rec Comments	Use to link to a major reviews, criticisms or assessing essay. Not used to include all references from the bibliography of the described resource. Provide a citation if no standard identifier is assigned and a formal citation is a common means of identifying the resource being described, using Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/2005/06/13/dc-citation-guidelines/)
Type of term	element refinement

Refines	Relation
Refined By	
Has Encoding Scheme	URI (http://purl.org/dc/terms/URI) If not expressed by URI - SICI (Serial Item and Contribution Identifier), ISBN (International Standard Book Number), ISSN (International Standard Serial Number), DOI (Digital Object Identifier).
Obligation	MA
Occurrence	References may be repeated for each valid reference.

Name of term	coverage
Term URI	http://purl.org/dc/elements/1.1/coverage
Label	Coverage
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	The extent or scope of the content of the resource
DC-rec Definition	
Source Comments	Coverage will typically include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity). Recommended best practice is to select a value from a controlled vocabulary (for example, the Thesaurus of Geographic Names [TGN]) and that, where appropriate, named places or time periods be used in preference to numeric identifiers such as sets of coordinates or date ranges.
DC-rec Comments	recibrary does not permit an unqualified Coverage.
Type of term	element
Refines	
Refined By	Spatial, Temporal
Has Encoding Scheme	
Obligation	MA
Occurrence	Coverage may be repeated for each spatial and temporal characteristic of the intellectual content.

Name of term	spatial
Term URI	http://purl.org/dc/terms/spatial
Label	Spatial
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Spatial characteristics of the intellectual content of the resource.
DC-rec Definition	
Source Comments	See Coverage comments.
DC-rec Comments	Use this element for geographic coverage of the intellectual content. Each geographic characteristic should be encoded using the Getty Thesaurus of Geographic Names (http://www.getty.edu/research/conducting_research/vocabularies/tgn/) and, if applicable, the DCMI Box Encoding Scheme (http://dublincore.org/documents/2006/04/10/dcmi-box/).
Type of term	element refinement
Refines	Coverage
Refined By	
Has Encoding Scheme	TGN (http://purl.org/dc/terms/TGN) DCMI Box (http://purl.org/dc/terms/Box)
Obligation	MA
Occurrence	Spatial may be repeated for each geographic characteristic of the intellectual content and each encoding scheme used.

Name of term	temporal
Term URI	http://purl.org/dc/terms/temporal
Label	Temporal
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Temporal characteristics of the intellectual content of the resource.
DC-rec Definition	
Source Comments	See Coverage comments.
DC-rec Comments	Use this element for temporal coverage of the intellectual content. Each temporal characteristic should be encoded using both the ISO

	8601 standard and DCMI Period Encoding Scheme (http://dublincore.org/documents/2006/04/10/dcmi-period/)
Type of term	element refinement
Refines	Coverage
Refined By	
Has Encoding Scheme	ISO 8601 (http://purl.org/dc/terms/ISO8601) DCMI Period (http://purl.org/dc/terms/Period)
Obligation	MA
Occurrence	Temporal may be repeated for each temporal characteristic of the intellectual content and each encoding scheme used.

Name of term	rights
Term URI	http://purl.org/dc/elements/1.1/rights
Label	Rights
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	Information about rights held in and over the resource.
DC-rec Definition	
Source Comments	Typically, a Rights element will contain a rights management statement for the resource, or reference a service providing such information. Rights information often encompasses Intellectual Property Rights (IPR), Copyright, and various Property Rights. If the Rights element is absent, no assumptions can be made about the status of these and other rights with respect to the resource.
DC-rec Comments	
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	
Obligation	MA
Occurrence	

Name of term	audience
Term URI	http://purl.org/dc/terms/audience
Label	Audience
Defined By	http://dublincore.org/documents/dcmi-terms/
Source Definition	A class of entity for whom the resource is intended or useful.
DC-rec Definition	
Source Comments	A class of entity may be determined by the creator or the publisher or by a third party.
DC-rec Comments	
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	MARC Target Audience Term List (http://www.loc.gov/standards/valuelist/marctarget.html)
Obligation	O
Occurrence	

Name of term	edition
Term URI	http://www.loc.gov/mods
Label	Edition
Defined By	
Source Definition	
DC-rec Definition	Information designating the version or edition of a work.
Source Comments	
DC-rec Comments	Being able to specify the version or edition of a given work is often critical to successful resource discovery and identification to determine whether a resource is the same as another one. This is particularly important for resources that change frequently. This is not to be used for versions in the sense of different physical formats (e.g. the PDF version of a textual resource). Use existing element <edition> under <originInfo> in the Metadata Object Description Schema

Type of term	element
Refines	
Refined By	
Has Encoding Scheme	
Obligation	MA
Occurrence	

Name of term	location
Term URI	http://www.loc.gov/mods
Label	Location
Defined By	
Source Definition	
DC-rec Definition	Identifies the organization holding the resource or from which access is obtained.
Source Comments	
DC-rec Comments	Use for a physical location that allows the user to retrieve the item when a URI is not appropriate . This also facilitates access if the URI doesn't retrieve anything or only a poor substitute. Use existing element <location> in the Metadata Object Description Schema
Type of term	element
Refines	
Refined By	
Has Encoding Scheme	MARC Code list for Organizations (http://www.loc.gov/marc/organizations/) ISO/DIS 15511.3 (http://isotc.iso.org/livelink/livelink?func=ll&objId=5701840&objAction=Open)
Obligation	MA
Occurrence	

encoding schemes

Name of term	Box
Term URI	http://purl.org/dc/terms/Box
Label	DCMI Box
Defined By	http://purl.org/dc/terms/
Definition	The DCMI Box identifies a region of space using its geographic limits.
Comments	http://dublincore.org/documents/dcmi-box/
Type of term	encoding scheme
Encoding Scheme For	Spatial

Name of term	DCMIType
Term URI	http://purl.org/dc/dcmitype/
Label	DCMI Type Vocabulary
Defined By	http://purl.org/dc/terms/
Definition	A list of types used to categorize the nature or genre of the content of the resource.
Comments	http://dublincore.org/documents/dcmi-type-vocabulary/
Type of term	encoding scheme
Encoding Scheme For	Type

Name of term	DDC
Term URI	http://purl.org/dc/terms/DDC
Label	DDC
Defined By	http://purl.org/dc/terms/
Definition	Dewey Decimal Classification
Comments	http://www.oclc.org/dewey/
Type of term	encoding scheme
Encoding Scheme For	Subject

Name of term	DOI
Term URI	
Label	DOI
Defined By	
Definition	Digital Object Identifier
Comments	http://www.doi.org/
Type of term	encoding scheme
Encoding Scheme For	Identifier, Source, Relation, Is Version Of, Is Format Of, Has Format, Is Replaced By, Replaces, Is Part Of, Has Part, Requires, Is Referenced By, References

Name of term	IMT
Term URI	http://purl.org/dc/terms/IMT
Label	IMT
Defined By	http://purl.org/dc/terms/
Definition	Internet Media Type
Comments	http://www.isi.edu/in-notes/iana/assignments/media-types/media-types
Type of term	encoding scheme
Encoding Scheme For	Format, Medium

Name of term	ISBN
Term URI	
Label	ISBN
Defined By	
Definition	International Standard Book Number
Comments	http://www.isbn.org/standards/home/isbn/international/index.asp
Type of term	encoding scheme
Encoding Scheme For	Identifier, Source, Relation, Is Version Of, Is Format Of, Has Format, Is Replaced By, Replaces, Is Part Of, Has Part, Requires, Is Referenced By, References

Name of term	ISO693-2
Term URI	http://purl.org/dc/terms/ISO639-2
Label	ISO 693-2
Defined By	http://purl.org/dc/terms/
Definition	ISO 639-2: Codes for the representation of names of languages
Comments	http://www.loc.gov/standards/iso639-2/
Type of term	encoding scheme
Encoding Scheme For	Language

Name of term	ISO8601
Term URI	http://purl.org/dc/terms/ISO8601
Label	ISO 8601
Defined By	http://purl.org/dc/terms/
Definition	ISO 8601: Data elements and interchange formats — Information interchange — Representation of dates and times
Comments	
Type of term	encoding scheme
Encoding Scheme For	Date, Created, Valid, Available, Issued, Modified, Date Copyrighted, Date Captured, Temporal

Name of term	ISSN
Term URI	
Label	ISSN
Defined By	
Definition	International Standard Serial Number
Comments	http://www.issn.org:8080/pub/
Type of term	encoding scheme
Encoding Scheme For	Identifier, Source, Relation, Is Version Of, Is Format Of, Has Format, Is Replaced By, Replaces, Is Part Of, Has Part, Requires, Is Referenced By, References

Name of term	LCC
Term URI	http://purl.org/dc/terms/LCC
Label	LCC
Defined By	http://purl.org/dc/terms/
Definition	Library of Congress Classification
Comments	http://lweb.loc.gov/catdir/cpso/lcco/lcco.html
Type of term	encoding scheme
Encoding Scheme For	Subject

Name of term	LCSH
Term URI	http://purl.org/dc/terms/LCSH
Label	LCSH
Defined By	http://purl.org/dc/terms/
Definition	Library of Congress Subject Headings
Comments	http://lweb.loc.gov/cds/lcsh.html
Type of term	encoding scheme
Encoding Scheme For	Subject

Name of term	Period
Term URI	http://purl.org/dc/terms/Period
Label	DCMI Period
Defined By	http://purl.org/dc/terms/
Definition	A specification of the limits of a time interval.
Comments	http://dublincore.org/documents/dcmi-period/
Type of term	encoding scheme
Encoding Scheme For	Temporal

Name of term	RFC3066
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Term URI	http://purl.org/dc/terms/RFC3066
Label	RFC 3066
Defined By	http://purl.org/dc/terms/
Definition	Internet RFC 3066 'Tags for the Identification of Languages' specifies a primary subtag which is a two-letter code taken from ISO 639 part 1 or a three-letter code taken from ISO 639 part 2, followed optionally by a two-letter country code taken from ISO 3166. When a language in ISO 639 has both a two-letter and three-letter code, use the two-letter code; when it has only a three-letter code, use the three-letter code. This RFC replaces RFC 1766.
Comments	http://www.ietf.org/rfc/rfc3066.txt
Type of term	encoding scheme
Encoding Scheme For	Language

Name of term	SICI
Term URI	
Label	SICI
Defined By	
Definition	Serial Item and Contributor Identifier
Comments	http://sunsite.berkeley.edu/SICI/
Type of term	encoding scheme
Encoding Scheme For	Identifier, Source, Relation, Is Version Of, Is Format Of, Has Format, Is Replaced By, Replaces, Is Part Of, Has Part, Requires, Is Referenced By, References

Name of term	TGN
Term URI	http://purl.org/dc/terms/TGN
Label	TGN
Defined By	http://purl.org/dc/terms/
Definition	The Getty Thesaurus of Geographic Names
Comments	http://www.getty.edu/research/tools/vocabulary/tgn/index.html

Type of term	encoding scheme
Encoding Scheme For	Spatial

Name of term	UDC
Term URI	http://purl.org/dc/terms/UDC
Label	UDC
Defined By	http://purl.org/dc/terms/
Definition	Universal Decimal Classification
Comments	http://www.udcc.org/
Type of term	encoding scheme
Encoding Scheme For	Subject

Name of term	URI
Term URI	http://purl.org/dc/terms/URI
Label	URI
Defined By	http://purl.org/dc/terms/
Definition	Uniform Resource Identifier
Comments	http://www.ietf.org/rfc/rfc2396.txt
Type of term	encoding scheme
Encoding Scheme For	Description, Abstract, Table of Contents, Identifier, Source, Relation, Is Version Of, Is Format Of, Has Format, Is Replaced By, Replaces, Is Part Of, Has Part, Requires, Is Referenced By, References

Name of term	MARCRelators
Term URI	
Label	MARC Relators
Defined By	
Definition	MARC Relator and Role Code and Term Source Codes
Comments	http://www.loc.gov/marc/sourcecode/relator/relatorlist.html

Type of term	encoding scheme
Encoding Scheme For	Contributor, Publisher

Name of term	MARCAudience
Term URI	
Label	MARC Audience
Defined By	
Definition	MARC Target Audience Term List
Comments	http://www.loc.gov/standards/valuelist/marctarget.html
Type of term	encoding scheme
Encoding Scheme For	Audience

Name of term	MARCOrg
Term URI	
Label	MARC Organizations
Defined By	
Definition	MARC Code List for Organizations
Comments	http://www.loc.gov/marc/organizations/
Type of term	encoding scheme
Encoding Scheme For	Location

Name of term	ISO15511-3
Term URI	
Label	ISO/DIS 15511.3
Defined By	
Definition	Information and documentation — International Standard Identifier for Libraries and Related Organizations (ISIL)
Comments	http://isotc.iso.org/livelink/livelink?func=ll&objId=5701840&objAction=Open
Type of term	encoding scheme

Encoding Scheme For	Location
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Name of term	ReciCuisine
Term URI	
Label	recibrary Cuisine
Defined By	
Definition	recibrary-developed Cuisine Coding Scheme
Comments	under development
Type of term	encoding scheme
Encoding Scheme For	Subject

Name of term	ReciCourse
Term URI	
Label	recibrary Course
Defined By	
Definition	recibrary-developed Course Coding Scheme
Comments	under development
Type of term	encoding scheme
Encoding Scheme For	Subject

Name of term	ReciMeal
Term URI	
Label	recibrary Meal
Defined By	
Definition	recibrary-developed Meal Coding Scheme
Comments	under development
Type of term	encoding scheme
Encoding Scheme For	Subject

Appendix C: Recipe

Encoding Samples

Recipe Encoding Sample: XML

```
<?xml version="1.0" encoding="ISO-8859-1"?>

<recipe xsi:noNamespaceSchemaLocation="recipe.xsd" recipeID="tu90k5d"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <recipeTitle>Scalloped Cauliflower</recipeTitle>
  <sourceName>The Rumford Complete Cook Book</sourceName>
  <sourceURL>http://www.recibrary.org/collection/a90pm</sourceURL>
  <creator>Lily Haxworth Wallace</creator>
  <creatorURL>http://www.recibrary.org/entity/8uj03</creatorURL>
  <servings>5</servings>
  <ingredientList>
    <unitSet>US</unitSet>
    <ingredient>
      <quantity>1</quantity>
      <unit>whole</unit>
      <ingredientName>cauliflower</ingredientName>
      <ingredientURL>http://www.recibrary.org/ingredient/cauliflower</ingredientURL>
    </ingredient>
    <ingredient>
      <quantity>1</quantity>
      <unit>tablespoon</unit>
      <ingredientName>butter</ingredientName>
      <ingredientURL>http://www.recibrary.org/ingredient/butter</ingredientURL>
    </ingredient>
    <ingredient>
      <quantity>.5</quantity>
      <unit>cup</unit>
      <ingredientName>heavy cream</ingredientName>
      <ingredientURL>http://www.recibrary.org/ingredient/heavy_cream</ingredientURL>
    </ingredient>
    <ingredient>
      <quantity>.5</quantity>
      <unit>cup</unit>
      <ingredientName>bread crumbs</ingredientName>
      <ingredientURL>http://www.recibrary.org/ingredient/bread_crumbs</ingredientURL>
    </ingredient>
    <ingredient>
      <quantity>.5</quantity>
      <unit>cup</unit>
      <ingredientName>nuts</ingredientName>
      <ingredientURL>http://www.recibrary.org/ingredient/nuts_general</ingredientURL>
    </ingredient>
    <ingredient>
      <quantity>1</quantity>
      <unit>cup</unit>
    </ingredient>
  </ingredientList>
</recipe>
```

```
<ingredientName>milk</ingredientName>
<ingredientURL>http://www.recibrary.org/ingredient/milk</ingredientURL>
</ingredient>
</ingredientList>
<directions>
  <step>
    <numberedIndicator>No</numberedIndicator>
    <order>0</order>
    <stepText>Preheat oven to 375 [degrees] F.</stepText>
  </step>
  <step>
    <numberedIndicator>Yes</numberedIndicator>
    <order>1</order>
    <stepText>Cook the cauliflower in boiling salted milk and water until tender, using the milk to
keep the cauliflower white.</stepText>
  </step>
  <step>
    <numberedIndicator>Yes</numberedIndicator>
    <order>2</order>
    <stepText>Drain and break the cauliflower into small pieces.</stepText>
  </step>
  <step>
    <numberedIndicator>Yes</numberedIndicator>
    <order>3</order>
    <stepText>Heat the butter and cream together.</stepText>
  </step>
  <step>
    <numberedIndicator>Yes</numberedIndicator>
    <order>4</order>
    <stepText>Add nuts and salt and pepper to taste.</stepText>
  </step>
  <step>
    <numberedIndicator>Yes</numberedIndicator>
    <order>5</order>
    <stepText>Grease a baking-dish and sprinkle it with bread crumbs.</stepText>
  </step>
  <step>
    <numberedIndicator>Yes</numberedIndicator>
    <order>6</order>
    <stepText>Add alternating layers of cauliflower and sauce, starting with the cauliflower, until the
dish is full or the ingredients used.</stepText>
  </step>
  <step>
    <numberedIndicator>Yes</numberedIndicator>
    <order>7</order>
    <stepText>Top with remaining bread crumbs.</stepText>
  </step>
```

```
<step>
  <numberedIndicator>Yes</numberedIndicator>
  <order>8</order>
  <stepText>Bake for 30 minutes until top browns..</stepText>
</step>
</directions>
<photoURL>http://www.recibrary.org/images/you9754p13k009iw</photoURL>
<scanURL>http://www.recibrary.org/images/0000000000pi9th</scanURL>
</recipe>
```

Recipe Encoding Sample: XML Schema

```
<?xml version="1.0" encoding="ISO-8859-1"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:annotation>
    <xs:documentation xml:lang="en">recipe schema for recibrary</xs:documentation>
  </xs:annotation>
  <xs:element name="recipe">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="recipeTitle" type="xs:string"/>
        <xs:element name="sourceName" type="xs:string"/>
        <xs:element name="sourceURL" type="xs:anyURI"/>
        <xs:element name="creator" type="xs:token"/>
        <xs:element name="creatorURL" type="xs:anyURI"/>
        <xs:element name="servings" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1" />
        <xs:element name="ingredientList" minOccurs="1" maxOccurs="1">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="unitSet" minOccurs="1" maxOccurs="1">
                <xs:simpleType>
                  <xs:restriction base="xs:string">
                    <xs:pattern value="US|metric" />
                  </xs:restriction>
                </xs:simpleType>
              </xs:element>
              <xs:element name="ingredient" minOccurs="1" maxOccurs="unbounded">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="quantity" type="xs:decimal" minOccurs="1" maxOccurs="1" />
                    <xs:element name="unit" minOccurs="1" maxOccurs="1">
                      <xs:simpleType>
                        <xs:restriction base="xs:string">
                          <xs:enumeration value="bushel"/>
                          <xs:enumeration value="cup"/>
                          <xs:enumeration value="dram"/>
                          <xs:enumeration value="drop"/>
                          <xs:enumeration value="fifth"/>
                          <xs:enumeration value="fluid ounce"/>
                          <xs:enumeration value="gallon"/>
                          <xs:enumeration value="gill"/>
                          <xs:enumeration value="gram"/>
                          <xs:enumeration value="jigger"/>
                          <xs:enumeration value="kilogram"/>
                          <xs:enumeration value="litre"/>
                          <xs:enumeration value="milligram"/>
                        </xs:restriction>
                      </xs:simpleType>
                    </xs:element>
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

```

        <xs:enumeration value="milliliter"/>
        <xs:enumeration value="ounce"/>
        <xs:enumeration value="peck"/>
        <xs:enumeration value="pint"/>
        <xs:enumeration value="pint (dry)"/>
        <xs:enumeration value="pound"/>
        <xs:enumeration value="quart"/>
        <xs:enumeration value="quart (dry)"/>
        <xs:enumeration value="shot"/>
        <xs:enumeration value="tablespoon"/>
        <xs:enumeration value="teaspoon"/>
        <xs:enumeration value="whole"/>
    </xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="ingredientName" type="xs:string" minOccurs="1"
maxOccurs="1"/>
<xs:element name="ingredientURL" type="xs:anyURI" minOccurs="1"
maxOccurs="1"/>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="directions">
<xs:complexType>
<xs:sequence>
<xs:element name="step" minOccurs="1" maxOccurs="unbounded">
<xs:complexType>
<xs:sequence>
<xs:element name="numberedIndicator">
<xs:simpleType>
<xs:restriction base="xs:string">
<xs:pattern value="Yes|No" />
</xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="order" type="xs:nonNegativeInteger" />
<xs:element name="stepText" type="xs:string" />
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="photoURL" type="xs:anyURI" />

```

```
<xs:element name="scanURL" type="xs:anyURI" />
</xs:sequence>
<xs:attribute name="recipeID" type="xs:string" use="required"/>
</xs:complexType>
</xs:element>
</xs:schema>
```