

## **Usability Inspection Report of iLumina**

(Educational resources for Science and Mathematics)  
<http://www.ilumina-project.org/>

### **NSDL Evaluation Project - Related to efforts at Virginia Tech**

**Priya Shivakumar**

**Dr. H. Rex Hartson**

**Dr Manuel A. Pérez-Quñones**

Please send feedback to [nsdleval@vt.edu](mailto:nsdleval@vt.edu)

#### **Overview of iLumina**

iLumina is a digital library of sharable undergraduate teaching resource materials for science, mathematics, technology, and engineering being developed by the University of North Carolina at

Wilmington (UNCW), Collegis, Virginia Tech, Georgia State University, Grand Valley State and The College of New Jersey. Types of iLumina resources include papers, tutorials, applets, presentations, visualizations, experiments, assignments, software, exercises.

## **Some Terminology for Understanding iLumina and this Report**

One of the most important conceptual issues in the iLumina user interface is the concept of "*metadata*" and the role it plays in the user's model of how the system works. Designers must often face the question of how much of the "internals" should be shared with users. Normally the answer is: no more than necessary. The concept of metadata, however, plays a role that cannot be hidden from users. If it is not possible to hide such a concept in the user's model of how the system works, then designers must represent it explicitly and explain its role within the system. The question for designers then is how to represent it to users?

Library retrieval systems, especially digital libraries, are systems for organizing documents (called resources within iLumina because they include objects such as experiments and software in addition to traditional documents) so that users can find documents needed to solve problems in their own work domain. Typically the documents themselves are not stored within the library retrieval system. In a physical library, the card catalog (or on-line version thereof) is the retrieval system but the documents (example, books) are stored elsewhere in the library, or distributed across multiple libraries. In digital library systems such as iLumina, users search and browse within iLumina to find resources they require to meet a need in their work as undergraduate educators, but the resources themselves are distributed over servers on the Internet and are not stored within iLumina.

What, then, is stored in iLumina to allow users to find these resources? It is common practice in libraries, digital and otherwise, to use data records that represent documents as the medium to be searched and browsed to find documents. In library science terminology, these data records are called "data surrogates" because they stand in place of the documents. Physical paper Library of Congress cards found in a library card catalog are document surrogates. In a digital library, the document surrogates are data records that are descriptive abstractions of the documents or resources. iLumina developers call these surrogate records "metadata" which include descriptive attributes such as authors, title, date of publication, media type (example, published paper, database, math application, spreadsheet), degree of difficulty (for students), etc. Once a user finds a metadata record describing a desired resource, the metadata usually includes a link (probably a URL) to locate the corresponding actual resource (example, for viewing or downloading).

To submit a new resource to iLumina, a user must enter the metadata, including the link to the actual resource. Therefore, the concept of metadata or data surrogate cannot be hidden from users, at least from users who submit resources to the library. So the question becomes: what terminology to use for the concept? From a usability perspective, we find "metadata" to be developer-centered, too much like jargon and not user-centered enough. Similarly, although "resource surrogate" might be more accurate, it is a library-science-centered term and also not user-centered. Since this is a surrogate for a resource and is clearly a computer-based record that can be searched and for which data is entered, we prefer to call it simply the resource record.

Hence, "*resource records*" (as we call them) are representations within iLumina of actual resources that are stored all over the World Wide Web. This representation (resource record) is stored in the

iLumina system and contains bibliographic information such as author, title, and URL to the actual resource. Searching these resource records in iLumina allows the user to find and access the resources.

The term "*collection*" (as used on iLumina website) refers to a virtual collection of learning resources. The virtual collection is an additional cataloging - similar to special or featured collections in a brick and mortar library. This additional cataloging is done by grouping together resources that are a part of a resource set or that are based on other resources and so on. Some of the virtual collections are resources developed by a particular author along a given theme.

## User Tasks Supported by iLumina

**T1 - Search** resource records in the iLumina digital library.

**T1a – Quick Search** involves searching all bibliographic fields for keyword matches.

**T1b – Advanced Search** provides for searching individual bibliographic fields with several filter options.

**T2 - Browse** the iLumina resource records.

**T3 - Browse/View** the iLumina collections.

**T4 - Register** as a user with iLumina. This is a requirement for contributing resource records to the iLumina digital library, but not for searching and browsing.

**T5 - Login/Logout** of the iLumina system.

**T6 - Submit** resource records to the iLumina digital library.

**T7 - Find** documents about the iLumina project such as white papers, journal articles and vocabularies.

**T8 - Edit User Profile** in iLumina.

## Usability Inspection

Usability inspection is a usability evaluation method that:

- ≪ Applies to both early designs (example, low-fidelity prototypes) and deployed systems
- ≪ Is usually less expensive than lab-based usability testing

- ≈ Is expert-base (conducted by a trained usability engineering practitioner)
- ≈ Has the goal of predicting usability problems that users will encounter in real usage

For the evaluation of the iLumina website we used Internet Explorer Version 5.50.4134.0600 on Microsoft Windows 2000. The evaluation was conducted on a AT/AT compatible Gateway computer with 130.6MB ram, using a 10Mbps connection to the Internet. We specifically did not cover ADA compliance in this inspection.

## Good Points of the iLumina Design

Since a usability inspection usually yields a list of usability problems, an inspection report can be perceived as only negative and critical. The goal of this report is, in fact, to list what we perceive to be usability problems, based on our usability inspection. However, we would like to say upfront that overall we found iLumina, in general, to be easy to understand and not difficult to use. The system functionality seems appropriate and the user interface is aesthetically pleasing.

### **In Browse**

Front page gives a very good view of the contents, in terms of attributes and values. Any link on the taxonomy path, but not the terminal node gives a listing of sub-nodes in the tree. On reaching the terminal node, the user gets a consistent view of the actual resources.

### **In Submit**

The find feature for finding people already in the system, to enter other roles while contributing a resource record is really useful and very good support for task thread continuity.

### **In Advanced Search**

The 'Period' field under Advanced Search is very nice in the way that it adopts to choices. If the user chooses 'between' for the Period, only then two input boxes appear for the start and end dates. Else for the rest of the choices, 'before' and 'after' a single input box for the date is provided. This feature is very well designed.

However, very few user interfaces are so good that they cannot benefit from usability evaluation. In that spirit, we present our candidate usability problems to consider in the event that a redesign effort occurs in the future.

## Problem Categories (Summary)

C1 - Homepage (2 problems)

C2 - Search (5 problems)

C3 - Browse (3 problems)

C4 - Collections (1 problem)



me | [Login](#) [Advanced Search](#) |

**Welcome to iLumina**, a digital library of sharable undergraduate teaching materials for science, mathematics, technology, and engineering. iLumina currently contains over 1,000 individual resources and more than 16 virtual collections covering the disciplines of biology, chemistry, computer science, mathematics and physics. These resources were created and contributed primarily by faculty for use in undergraduate classes and labs. In iLumina, you can contribute, locate and download resources or read news and publications about the digital library's development.

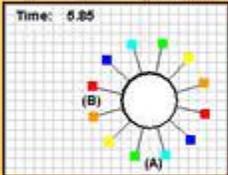
Have a look around, or check out the "[Getting Started](#)" guide.

**Featured Virtual Collection**

---

**Physlets, Chapter Four. A Tour of Physlets**

Time: 6:25



[\[View all 15 virtual collections\]](#)

**Resources:** 30  
**Discipline:** Physics  
**Contributors:** Wolfgang Christian, Mario Belloni

This tour gives a sampling of how Physlets can be used.  
[\[read more...\]](#)

**Usability Principle:** Explain the system model to the user, including what a user can do with this system.

**User Action Framework Classification:** Planning > User's Model of the System

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** On the Homepage, provide information about how iLumina works and what is stored in iLumina (list of the types of learning objects that are currently stored in iLumina). Also explain for what functions the user needs to register and log in, and move the login function from the Homepage to the contribute page as logging in to the system is required only if the user wishes to Submit resources to iLumina. Also mention what is in the **Getting Started** guide which is provided as a link from the Homepage. ('Getting Started guide contains information on resource location, resource usage, resource submission and more')

### What is iLumina?

iLumina is a digital library of sharable undergraduate teaching resource materials (that we call resources) for science, mathematics, technology, and engineering being developed by the University of North Carolina at Wilmington (UNCW), Collegis, Virginia Tech, Georgia State University, Grand Valley State and The College of New Jersey.

### Types of iLumina resources

Lesson	Presentation	Lab	Assessment	Teacher Tool	Syllabus
Example	Exercise	Course	Project	Learner Tool	Book
Demonstration	Simulation	Dataset	Lesson Plan	Manager Tool	

### iLumina Services

- **Search and browse** services to find resources
- **Free download** of resources
- **Easy contribution** of new resources using web-based forms
- **Detailed information** on our [project](#), [partners](#), and [technical design](#)

### How iLumina Works

For each resource, iLumina stores a resource record, not the resource itself. A resource record contains descriptive information from and about the resource, plus a link to the resource. In this way iLumina is a single access point to resources all across the World Wide Web. iLumina helps you do a focused search for teaching resources, by searching resource records using specific descriptors such as title, author, educational level, discipline areas, and subject categories.

You can use iLumina free and without registration, but you must [register](#) if you wish to contribute new resource records. Check back often to use our new services or to see the resource records we've recently added.

### Featured Resource



### Current resource discipline areas

- [ACM Computing Classification System](#) [ 61 resources ]
- [Biology](#) [ 175 ]

**Location:** In the Homepage.

**Other problems subsumed:**

Problem Number: C1.2

<b>Usability Problem Name:</b> Hidden/Buried Link.
<b>User Task:</b> Find (T7)
<b>Usability Problem:</b> Links to pages on the iLumina project, partners, and technical design are buried within textual information on the Homepage.
<b>Usability Principle:</b> Place the cognitive affordance or object within the user's focus of attention.
<b>User Action Framework Classification:</b> TBD
<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> Add a tab <b>About the project</b> to the top frame leading to a page with information on the iLumina project, partners, and technical design.

<b>Location:</b> In the Homepage.
<b>Other problems subsumed:</b>

## Search

Problem Number: C2.1
<b>Usability Problem Name:</b> Quick Search explanation
<b>User Task:</b> Quick Search (T1a)
<b>Usability Problem:</b> Need for explanation to help the user understand how <b>Quick Search</b> works.
<b>Example from iLumina:</b>

<b>Usability Principle:</b> Explain the system model to the user, including what a user can do with this system.
<b>User Action Framework Classification:</b> Planning > User's Model of the System
<b>Estimated Importance Rating:</b> TBD

**Suggested Possible Redesign:** First expand the label slightly to include the word 'keyword' to show what kind of search is intended. Also, add an information icon (as shown below) next to the label leading to a pop-up window where it specifies exactly how the search works ('Free vocabulary separated by spaces are "AND" ed in the search query and hence only matches with both words are retrieved')



**Location:** On the top frame in all iLumina pages.

**Other problems subsumed:**

Problem Number: C2.2

**Usability Problem Name:** Resource ID search buried within advanced search

**User Task:** Advanced Search (T1b)

**Usability Problem:** Resource ID search is similar to a quick search, but is used in only one very special situation. A user who does know the unique resource id will not likely think to use the Advanced Search, based on a large variety of search attributes. If a user already knows the unique ID value for a resource, most likely from having previously accessed or worked with a resource, it is convenient to get back to that resource directly via the ID. But in fact, the Resource ID is the last option provided to the user on the Advanced Search page and is placed at the bottom of a complex, long page.

**Example from iLumina:**

**Usability Principle:** Avoid unnecessary user navigation and exploration to find needed objects. Enhance findability.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Place the **Resource ID** search box on the top frame along with the quick search.



**Location:** Access the Homepage, click on **Advanced Search** and scroll to the bottom of the page.

**Other problems subsumed:**

Problem Number: C2.3

**Usability Problem Name:** Incomplete wording in column headings of search results page.

**User Task:** Search (T1)

**Usability Problem:** **Area** and **Date** headings for columns in the search results page are incomplete. The Date column as far as the user is concerned could be submission date, publication date or any other date. The term **Discipline** has been used to represent **Area** in the Advanced Search page. A user who has submitted a resource before and is now viewing a resource record could get confused due to the inconsistent term usage (**Area Vs Discipline**). Furthermore, under heading **Area**, abbreviations (example CSC below) have been used used for area (discipline) names for each listing, instead of full names. No mapping between these abbreviations and full names is provided anywhere in the iLumina system. These fields do not appear as part of the record for the resource either.

**Example from iLumina:**

Search Results		
back to search form		
Area	Date	Title
CSC	6/11/2002	Web Usability Testing

**Usability Principle:** Use precise, consistent and complete labels.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

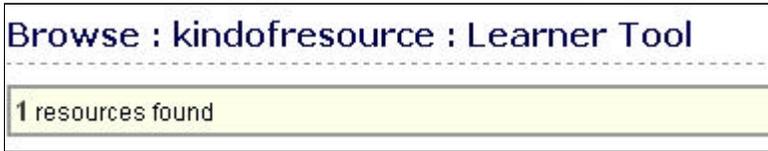
<p><b>Suggested Possible Redesign:</b> Reword <b>Date</b> label to make it complete (<b>Submission Date</b> or <b>Publication Date</b>). Replace <b>Area</b> by <b>Discipline</b> to be consistent with usage of the term throughout the site. Make the abbreviated area names into links which bring up pop-up windows containing full forms with explanations (or at least rollover pop-ups with the full forms). A simpler solution is to provide full forms as part of the listings in the search results page. Also include this as part of the detailed record.</p>
<p><b>Location:</b> Access the Homepage, on the constant top frame.</p>
<p><b>Other problems subsumed:</b></p>

<p>Problem Number: C2.4</p>						
<p><b>Usability Problem Name:</b> Can't see query and result together</p>						
<p><b>User Task:</b> Search (T1)</p>						
<p><b>Usability Problem:</b> Search results do not display criteria used for the search.</p>						
<p><b>Example from iLumina:</b></p> <div> <p>The screenshot shows a search results page titled "Search Results". Below the title is a link "back to search form". Below that is a table with three columns: "Area", "Date", and "Title". The first row of the table contains the following data: "CSC", "6/11/2002", and "Web Usability Testing".</p> <table border="1"> <thead> <tr> <th>Area</th> <th>Date</th> <th>Title</th> </tr> </thead> <tbody> <tr> <td>CSC</td> <td>6/11/2002</td> <td>Web Usability Testing</td> </tr> </tbody> </table> </div>	Area	Date	Title	CSC	6/11/2002	Web Usability Testing
Area	Date	Title				
CSC	6/11/2002	Web Usability Testing				
<p><b>Usability Principle:</b> Supporting user task thread continuity and supporting human memory limitations by establishing a connection between two related parts of a task. Searches are usually designed as a one-shot function where the user submits a query, gets the results, and is done. But in reality, the task is often an iteration of these steps, in which the user modifies the query based on retrieved results, refining it to get just the right results. The user needs to see the query along with the results to visualize the relationship between the two, as a likely next step, in order to do this refinement.</p>						
<p><b>User Action Framework Classification:</b> TBD</p>						
<p><b>Estimated Importance Rating:</b> TBD</p>						
<p><b>Suggested Possible Redesign:</b> Provide information about what the user searched for when he/she is shown the results. This will help the user refine the query and also reduce his/her memory load. Provide a link to a page containing the summary of query parts ( filters, search strings, etc.) as shown below.</p>						

<p>Search Results ( <a href="#">summary of query parts</a> )</p> <p><a href="#">back to search form</a> 2 resources found.</p>
<p><b>Location:</b> Access Homepage, do a search to obtain the result page.</p>
<p><b>Other problems subsumed:</b></p>

<p>Problem Number: C2.5</p>
<p><b>Usability Problem Name:</b> Confusing option for Media Types</p>
<p><b>User Task:</b> Advanced Search (T1b)</p>
<p><b>Usability Problem:</b> The <b>Not Specified</b> option (as found under <b>Media Types</b>: in <b>Advanced Search</b>) could cause confusion to the user. It is not clear if selecting <b>Not Specified</b> is different from not selecting anything at all (which would be the proper way, using check boxes).</p>
<p><b>Example from iLumina:</b></p> <div style="border: 1px solid gray; padding: 5px; width: fit-content;"> <input type="checkbox"/> Database  <input type="checkbox"/> Math Application  <input type="checkbox"/> Spreadsheet  <input type="checkbox"/> -- Not Specified -- </div>
<p><b>Usability Principle:</b> Avoid unnecessary user confusion</p>
<p><b>User Action Framework Classification:</b> TBD</p>
<p><b>Estimated Importance Rating:</b> TBD</p>
<p><b>Suggested Possible Redesign:</b> Remove the option <b>Not Specified</b>.</p>
<p><b>Location:</b> Access the Homepage, click on <b>Advanced Search</b> and scroll to the bottom of the page.</p>
<p><b>Other problems subsumed:</b></p>

## Browse

<b>Problem Number:</b> C3.1
<b>Usability Problem Name:</b> Jumbled up words in Browse Path
<b>User Task:</b> Browse (T2)
<b>Usability Problem:</b> The browse path is very useful to the user, but terms like <b>kindOfResource</b> in the browse path could cause a lot of irritation to the user. This seems to be a program variable surfacing to the user interface, which detracts from user-centeredness.
<b>Example from iLumina:</b>
 <p>The screenshot shows a search interface. At the top, the text 'Browse : kindofresource : Learner Tool' is displayed. Below this, a yellow highlighted box contains the text '1 resources found'.</p>
<b>Usability Principle:</b> Use precise, complete, correct and consistent wording.
<b>User Action Framework Classification:</b> TBD
<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> Replace terms like <b>kindOfResource</b> by words spelled in correct English ( <b>Kind Of Resource</b> ).
<b>Location:</b> Access the Homepage, click on <b>Browse</b> and choose a category.
<b>Other problems subsumed:</b>

<b>Problem Number:</b> C3.2
<b>Usability Problem Name:</b> - Jargon - <b>taxon path</b>
<b>User Task:</b> Browse (T2)
<b>Usability Problem:</b> The term <b>taxon path</b> (as found, for example, in the <b>Browse</b> , under <b>ACM Computing Classification System</b> ) is not user centered.
<b>Example from iLumina:</b>

<p><b>ACM Computing Classification System</b></p> <hr/> <p>taxon path</p> <ul style="list-style-type: none"> <li>• <a href="#">Algorithms and Data Structures [24]</a></li> <li>• <a href="#">Architecture Methods [10]</a></li> </ul>
<p><b>Usability Principle:</b> Use user-centered wording (i.e., words the average user is likely to use).</p>
<p><b>User Action Framework Classification:</b> TBD</p>
<p><b>Estimated Importance Rating:</b> TBD</p>
<p><b>Suggested Possible Redesign:</b> Replace it by a term that is more meaningful to the user. Here <b>Classification Path</b> would be a good term to use as the word <b>Classification</b> also appears in the heading <b>ACM Computing Classification System</b>.</p>
<p><b>Location:</b> Access the Homepage, click on <b>Browse</b> and choose <b>ACM Computing Classification System</b></p>
<p><b>Other problems subsumed:</b> See problem number C8.3 for further suggestions about this naming problem.</p>

<p>Problem Number: C3.3</p>
<p><b>Usability Problem Name:</b> Unnecessary link on Browse/Search results page</p>
<p><b>User Task:</b> Browse and Search (T1 and T2)</p>
<p><b>Usability Problem:</b> The <b>back to browse</b> link on the Browse pages is redundant as it does the same function as the <b>Browse</b> link on top frame. The link <b>back to search form</b> as found on the search results page is equivalent to the browser back button and is unnecessary and is possibly confusing. This is more a redundancy than a problem, but is still worth fixing.</p>
<p><b>Example from iLumina:</b></p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <hr/> <div style="background-color: #ffffcc; display: inline-block; padding: 2px 10px;">back to browse</div> </div>
<p><b>Usability Principle:</b> Avoid misleading features</p>
<p><b>User Action Framework Classification:</b> TBD</p>

<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> Remove the link <b>back to browse</b> and <b>back to search</b> .
<b>Location:</b> Access the Homepage, click on Browse and choose any category. For the link on search results page, access Homepage, do a Quick search to obtain the results page.
<b>Other problems subsumed:</b>

## Collections

Problem Number: C4.1
<b>Usability Problem Name:</b> Incorrect number displayed for found resources.
<b>User Task:</b> Browse/View (T3)
<b>Usability Problem:</b> Under <b>Collections</b> , the number of resource records actually present in any collection is different from what is displayed while listing that collection. Only upon browsing/viewing the contents of the collection will the user realize that there are lesser/greater number of resources than was displayed in the collection summary page (For example, in the image below, the collection actually consists of more than 16 resource records). This is incorrect, misleading information to the user. Also on the Resource Details page for any resource record (from collection) term <b>1 of 1 found resources</b> is displayed, whereas found resources under any particular collection is usually much greater than 1. This does not match the actual collection size.
<b>Example from iLumina:</b>

<b>Usability Principle:</b>
<b>User Action Framework Classification:</b> TBD
<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> Display accurate, consistent numbers.
<b>Location:</b> Access Homepage, click on the <b>Collections</b> link and click on any listed collection.
<b>Other problems subsumed:</b>

## Submission

Problem Number: C5.1
<b>Usability Problem Name:</b> Model for <b>Resource Relationships</b>
<b>User Task:</b> Submit (T6)
<b>Usability Problem:</b> Need for more explanation to help the user understand what the <b>Based On</b> relationship means and how both the relationships work. Also it is not clear where the <b>Based On</b> relationship shows up in the resource record.
<b>Example from iLumina:</b>
<div style="border: 1px solid black; padding: 5px;"> <p><b>4. Resource Relationships</b></p> <p>If the resource you are contributing is part of a larger resource or collection already in the library, please include the URL for the object that your resource <i>is part of</i>. If you are submitting a larger resource or collection that is based on or includes resources already in the library, please include the URLs for the objects that your resource <i>is based on</i>. Otherwise, leave this section blank.</p> <p>This <b>resource</b> is <input type="text" value="Does not apply"/> the following resource(s) already in the digital library. Enter the URL(s) of the resource(s):</p> <input type="text" value="http://"/>  <input type="text" value="http://"/>  <input type="text" value="http://"/> </div>
<b>Usability Principle:</b> Explain the system model to the user, including what a user can do with this system.
<b>User Action Framework Classification:</b> Planning > User's Model of the System
<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> Provide explanation on how <b>Resource Relationships</b> work. Explain to the submitter, how establishing relationships while submitting the resource record will affect the resource. For example a message like, 'If you choose the <b>Part Of</b> relationship and specify the URLs for the objects that your resource is part of, your resource will appear among the collection to which the specified object belongs. It will then be also browsable through the collections link on the iLumina website.' Provide a symmetric explanation for <b>Based On</b> relationship as well (we don't understand it enough to suggest the explanation for <b>Based On</b> here).

Also to facilitate submission and entry of the resource URL, provide a way for the user to easily find the resource URL near the text entry box. This can be done through a 'Find Resources' button as shown. Clicking on this button would lead to a pop-up search/browse facility to locate the relevant resource. After locating the resource clicking on a button labeled 'Copy the resource URL' would bring the user back to the submission form (shown below) with the URL filled in.

**4. Resource Relationships**

If the resource you are contributing is part of a larger resource or collection already in the library, please include the URL for the object that your resource *is part of*. If you choose the *part of* relationship and specify the URLs for the objects that your resource is part of, your resource will appear among the collection to which the specified object belongs. It will then be also browsable through the collections link on the iLumina website. If you are submitting a larger resource or collection that is based on or includes resources already in the library, please include the URLs for the objects that your resource *is based on*. Otherwise, leave this section blank.

This **resource** is  the following resource(s) already in the digital library.  
Enter the URL(s) of the resource(s):

<input type="text" value="http://dl.uncwil.edu/chemistry/chpt01b.htm"/>	<input type="button" value="Find Resource"/>
<input type="text" value="http://"/>	<input type="button" value="Find Resource"/>
<input type="text" value="http://"/>	<input type="button" value="Find Resource"/>

**Location:** Access the Homepage, click on the **Contribute** link on the top frame and scroll down to **Resource Relationships**.

**Other problems subsumed:**

Problem Number: C5.2

**Usability Problem Name:** Incorrect term – **Contribute Resources**

**User Task:** Submit (T6)

**Usability Problem:** In the iLumina system, the user does not contribute actual resources but registers his resource with iLumina by providing resource records containing information about the resource and a URL leading to the resource. So the term **Contribute Resources** is incorrect and misleading. Further, since the person submitting the resource record is not always the author, it is more of a **submission** than a **contribution**, at least in the academic sense.

**Example from iLumina:**

<div> <p><b>Contribute Resources</b></p> <hr/> <p>Contribute a resource for inclusion in iLumina.</p> <p><b>1. Information About Submitter</b></p> </div>
<p><b>Usability Principle:</b> Use precise, complete, correct and consistent wording.</p>
<p><b>User Action Framework Classification:</b> TBD</p>
<p><b>Estimated Importance Rating:</b> TBD</p>
<p><b>Suggested Possible Redesign:</b> Modify the term <b>Resources</b> to <b>Resource records</b> throughout the system and change <b>Contribute</b> to <b>Submit</b> throughout the system.</p>
<div> <p><b>Submit Resource Records</b></p> <p>Submit a resource record for inclusion in iLumina.</p> </div>
<p><b>Location:</b> Access the Homepage, click on <b>Contribute</b> link on the top frame.</p>
<p><b>Other problems subsumed:</b> See also I2.6</p>

<p>Problem Number: C5.3</p>
<p><b>Usability Problem Name:</b> Inconsistent use of the term <b>contributor/contribute</b></p>
<p><b>User Task:</b> Submit (T6)</p>
<p><b>Usability Problem:</b> The terms <b>Contributor</b> and <b>Submitter</b> have been used interchangeably on the Contribute Resources page. Also the function is more about submitting (a resource record) than contributing (a term often associated with authoring).</p>
<p><b>Example from iLumina:</b></p> <div> <p><b>Contribute Resources</b></p> <hr/> <p>Contribute a resource for inclusion in iLumina.</p> <p><b>1. Information About Submitter</b></p> </div>

**Usability Principle:** Use precise, complete, correct and consistent wording.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Use the term **submit** and **submitter** throughout the page and the site instead of **contribute** and **contributor**. Contribution would be an appropriate term if the resource were to be always submitted by a person who creates or owns the resource. As iLumina allows resource entry by a person other than the creator of the resource, submitter would be a better term to use here.

## Submit Resource Records

Submit a resource record for inclusion in iLumina.

**Location:** Access the Homepage, click on **Contribute** link on the top frame.

**Other problems subsumed:** See also I2.5

Problem Number: C5.4

**Usability Problem Name:** - Incomplete term - **Submitter**

**User Task:** Submit (T6)

**Usability Problem:** On the **Contribute Resources** page (now the 'Submit resource record' page), one of the options for the **Your Role** field is **Submitter**. Every user who submits to the iLumina system is a submitter. They could additionally be authors, reviewers etc.

**Example from iLumina:**

## Contribute Resources

Contribute a resource for inclusion in iLumina.

### 1. Information About Submitter

**Your Role:**

**Your E-mail Address:** hartson@vt.edu

**Last Name:** Hartson

**Usability Principle:** Use clear, precise, complete.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Replace the label **Your Role** by **Submitter's Role** and replace the option **Submitter** with **None of the above**.

**Submit a resource record**

---

**1. Information About Submitter**

**Submitter's Role:**

Your E-mail Address:

Last Name:

**Location:** Access the Homepage, click on **Contribute**.

**Other problems subsumed:**

**Problem Number:** C5.5

**Usability Problem Name:** No filtering of a subtype based on selection of parent type and incomplete set of choices.

**User Task:** Submit (T6)

**Usability Problem:** On the contribution page, under Technical Information and Requirements, the **Name** which is the subtypes of **Type** does not get filtered based on the **Type** that is selected by the user. This can confuse users by presenting many inappropriate choices, concealing the choices which are suitable. This could also cause problems as it lets the user enter erroneous data. Also the set of choices provided for **Name** under Technical Information and Requirements is incomplete.

**Example from iLumina:**

Type:  Name:

**Usability Principle:** Avoid user error by making inappropriate choices unavailable to the user.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Filter the subtypes (**Name**) offered, based on the choices (**Type**) made by the user. With this feature the real choices will be clear and the user cannot make inadvertent mistakes. This feature has been implemented for other choices on the Contribute page and including filtering for subtypes as mentioned here would also enhance consistency. Include **other** as one of the options in the list for Names under **Technical Information and Requirements for this Resource**, plus a field for entering description.

**Location:** Access the Homepage, click on **Contribute** on the top frame.

**Other problems subsumed:**

Problem Number: C5.6

**Usability Problem Name:** Resource Search feature missing under Submit to establish relationships.

**User Task:** Submit (T6)

**Usability Problem:** Users are expected to establish resource relationships with resources already in the iLumina system, while contributing resources, by specifying URL's of related resources. This is cumbersome especially since URL's are already part of resource records and providing resource id's of related resources should make the task easier for the user. However users who want to search for related resources while submitting resource records will have to go to advanced search or quick search and then cut and paste the resource id.

**Usability Principle:** Provide affordances for users' likely next task.

**User Action Framework Classification:** Planning > User's Model of the System

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Provide a pop-up search box for resources next to the text boxes under **Resource Relationships**.

**Location:** Access the Homepage, click on **Contribute** on the top frame and scroll down to **Resource Relationships**.

**Other problems subsumed:**

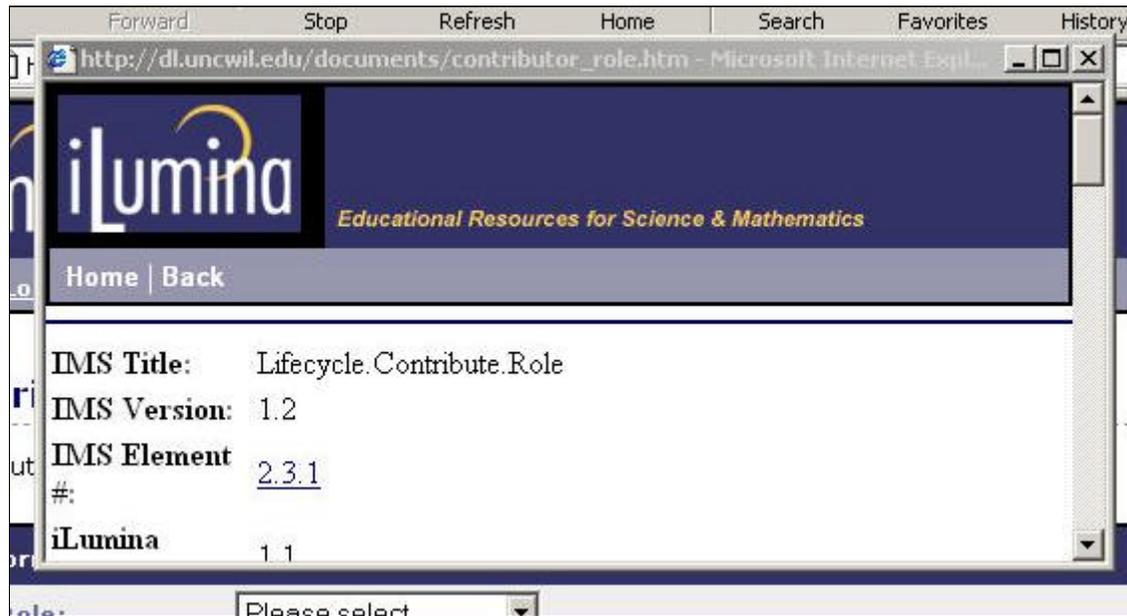
Problem Number: C5.7

**Usability Problem Name:** Size of pop-up window too small.

**User Task:** Submit (T6)

**Usability Problem:** Under Contribute Resources, on clicking on the field names, information related to the field names pops up in a window whose size is not large enough for all the text to be displayed properly. Instead the text wraps around and the user is required to resize the window. There is no space limitation that would dictate a narrow or small window here.

**Example from iLumina:**



**Usability Principle:**

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Increase the size of the window to display the text properly.

**Location:** Access Homepage, click on the **Contribute** and click on any field name.

**Other problems subsumed:**

**Problem Number:** C5.8

**Usability Problem Name:** Metadata format information irrelevant to the user.

**User Task:** Submit (T6)

**Usability Problem:** Under Contribute Resources, on clicking on the field names information

related to IMS metadata format is displayed to the user along with relevant information like description. This extra information like **IMS Version**, is not user centered and is just clutter to most users. If this kind of information is necessary for some users, add a link labeled **Click for internal info** or something to that effect.

**Example from iLumina:**

<b>IMS Title:</b>	Lifecycle.Contribute.Role
<b>IMS Version:</b>	1.2
<b>IMS Element #:</b>	<u>2.3.1</u>
<b>iLumina Version:</b>	1.1
<b>iLumina Update:</b>	April 20, 2001

**Usability Principle:** Use user-centered wording (i.e., words the average user is likely to use).

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Remove information that is not meaningful to the average user. Instead add useful information like an example along with the description.

**Location:** Access Homepage, click on the **Contribute** and click on any field name.

**Other problems subsumed:**

Problem Number: C5.9

**Usability Problem Name:** Confusing drop down boxes for **Data Type** field during contribution.

**User Task:** Submit (T6)

**Usability Problem:** There are three drop down boxes specifying **Data Type** for the same resource on the resource record contribution page. This is confusing and unnecessary. Also it is not clear how a resource can even have more than one **Data Type**.

**Example from iLumina:**

3. Technical Information and Requirements for this Resource	
<b>Data Type 1:</b>	[Select Mediatype] [Select Datatype]
<b>Data Type 2:</b>	[Select Mediatype] [Select Datatype]
<b>Data Type 3:</b>	[Select Mediatype] [Select Datatype]

<b>Usability Principle:</b>
<b>User Action Framework Classification:</b> TBD
<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> Use only one drop down box for <b>Data Type</b> as the user is allowed to submit only one resource at a time. Or, if there is a reason why more than one data type is desired (or even possible) explain it to the user.
<b>Location:</b> Access the Homepage, click on <b>Contribute</b> link on the top frame.
<b>Other problems subsumed:</b>

## Login

Problem Number: C6.1
<b>Usability Problem Name:</b> Login/Register necessity explanation and task thread continuity.
<b>User Task:</b> Login and Register (T4, T5)
<p><b>Usability Problem:</b> Need for explanation to the user for when login to iLumina is required. This is especially necessary since some functions in iLumina do not require the user to log in and some others do. Users might walk away if registering and giving their email address to yet another database appears to be a precondition for use.</p> <p>Also, when users click on the <b>Contribute</b> tab (now the Submit resource record tab) they get the Login page. This is an enormous task discontinuity and an inconsistency between a departure point (the tab) and the arrival point (the Login page). Furthermore, when the user finishes registering with the system, he/she gets confirmation about having registered successfully which is good. However, the likely next task of the user is to login, but the user has to click on the Login link among the tabs on the top frame to get to the login page. Finally, when the user logs in to the iLumina system, he is taken to the Homepage with no apparent change. He needs to remember why he logged in and then click on the appropriate link to start his task from the Homepage (this time as a logged in user).</p>
<b>Example from iLumina:</b>

## Login to iLumina

Login to iLumina here. If you are not registered, please [register](#) as a new user

Login	
email	<input type="text"/>
Password	<input type="password"/>

**Usability Principle:** Explain the system model to the user, including what a user can do with this system. Support user task thread continuity and supporting human memory limitations by establishing a connection between two related parts of a task.

**User Action Framework Classification:** Planning > User's Model of the System

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Provide explanation in the Login page (and Registration page), explaining to the user that he/she needs to login only if they wish to submit resource records.

## Login to iLumina

You need to login only if you wish to contribute to iLumina. Search, browse and other functions of iLumina do not require login to the system.

Login to iLumina here. If you are not registered, please [register](#) as a new user

Login	
email	<input type="text"/>
Password	<input type="password"/>
<input type="button" value="Log in"/>	<a href="#">forgot password</a>

Also the Submit resource record tab should go to a Submit resource record info page, which spells out the model of how it works. Start with this (even if it is slightly redundant with site Homepage, it provides the information as needed):

*iLumina stores only resource records, descriptions of resources, not the actual resources themselves. In most cases the resource record includes a URL or other link to the resource. The submission process then involves entering the descriptive data in a new resource record. (All of this is now hidden and the users must discover it for themselves.)*

Next the Submit resource record information page must spell out the submission process:

*Prerequisites:*

- ≠ must be a registered user*
- ≠ must log in*

*If you wish to continue with your submission and are not a registered user, please register now by [clicking here to register](#).*

*If you wish to continue with your submission and are registered but not logged in, please login now by [clicking here to login](#).*

After this provide a link to the real submission page.

Add a login box to the page displayed to the user after he/she has finished registering. Since in iLumina only one task (Submit) requires logging in to the system, upon login take the user directly to the contribute page. If there are more than one function that require login, upon login highlight these functions to the user so as to catch his focus of attention. Normally in this case we would have suggested getting rid of the login link from the tabs altogether as login is required only for submission (and would be available through submission link). However iLumina's future designs include plans to personalize some services like browse and search, and hence we suggest that the link stay as part of the tabs (as it is right now).

**Location:** On the top frame in all iLumina pages

**Other problems subsumed:** Related to I2.5, I2.6

Problem Number: C6.2

**Usability Problem Name:** Missing **forgot password** option.

**User Task:** Login/Logout (T5)

**Usability Problem:** On the login page there is no option provided for a user who has forgotten his/her password.

**Example from iLumina:**

## Login to iLumina

Login to iLumina here. If you are not registered, please [register](#) as a new user



**Usability Principle:** Provide necessary alternatives for a task.

**User Action Framework Classification:** Planning > User's Model of the System

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Provide a link for **forgot password** which allows the user to obtain his password.



**Location:** Access the Homepage, click on **Login**.

**Other problems subsumed:**

**Problem Number:** C6.3

**Usability Problem Name:** Incomplete Label for link upon login (**Profile**)

**User Task:** Overall

**Usability Problem:** The term **Profile** (as found, among the links at the bottom of iLumina pages) is incomplete and does not clearly state what it means or what the user can do with it.

**Example from iLumina:**


[Home](#) | [Logout](#) | [Profile](#) | [Advanced Search](#) |

**Usability Principle:** Use enough words in labels to be precise, to allow user to distinguish alternatives and to predict consequences of selection

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Replace it by a term that is more meaningful to the user like **Edit User Profile**. Use verbs for labeling functions rather than nouns. Also include an information icon next to the link that leads to a pop-up window containing information about user profile's, how they are going to be used and who needs to fill them out.



[Home](#) | [Logout](#) |  [Edit User Profile](#) | [Advanced Search](#) |

**Location:** Among the links at the bottom of all iLumina pages, after logging in to the system.

**Other problems subsumed:**

## Register

**Problem Number:** C7.1

**Usability Problem Name:** - Jumbled and misleading wording on registration confirmation page

**User Task:** Register (T4)

**Usability Problem:** The sentence 'iLumina login is required for services like contribution or review' that appears after the user registers successfully looks like an error message, but is really just (too late) information about why login might be needed. It is also not clear that it is possible to review through the system. There is no link for review anywhere in the system. The terms **firstName**, **lastName** appear to be program variable names surfacing to the user interface and are not English words. Also the 'status \*\*\* New Registration\*\*\*' seems to be a database update that is appearing as part of user confirmation.

**Example from iLumina:**

iLumina login is required for services like contribution or review.  
status \*\*\* New registration \*\*\*  
firstName Priya  
lastName Shivakumar  
email p\_riya@yahoo.edu

**Usability Principle:** Use clear, relevant and precise wording.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Start by welcoming the user to the system. If review is not possible through the system, then do not mention it in this page as a possible task. However if it is possible, then change 'iLumina login is required for services like contribution or review' to something like 'iLumina login is required for services like contribution, review etc.'. Remove the 'status \*\*\* New Registration\*\*\*' statement. Instead welcome the user to the iLumina system and provide a feedback like 'You have successfully registered with iLumina'. Modify terms like **firstName**, **lastName** etc. by meaningful names like **First Name**, **Last Name** and so on.

Welcome to iLumina! You have successfully registered with iLumina.

Your iLumina registration will allow you to log in, which is needed only for functions like submitting a resource record or doing a review.

**Registration Details:**

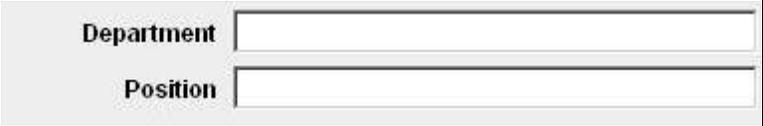
First Name: Priya

Last Name: Shivakumar

Email : p\_riya@yahoo.com

**Location:** Access the Homepage, click on **Register** and register with the system .

**Other problems subsumed:**

Problem Number: C7.2
<b>Usability Problem Name:</b> - Incomplete term - <b>Position</b>
<b>User Task:</b> Register (T4)
<b>Usability Problem:</b> The term <b>Position</b> (as found, for example, in the Register as a New iLumina User) is not the best possible choice and is ambiguous.
<b>Example from iLumina:</b>

<b>Usability Principle:</b> Use clear and precise wording (i.e., words the average user is likely to use).
<b>User Action Framework Classification:</b> TBD
<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> Replace it by a term that is more meaningful to the user ( <b>Job Title</b> ).
<b>Location:</b> Access the Homepage, click on <b>Register</b> .
<b>Other problems subsumed:</b>

Problem Number: C7.3
<b>Usability Problem Name:</b> Change password hidden.
<b>User Task:</b> Edit User Profile (T8)
<b>Usability Problem:</b> Under <b>Edit iLumina User Profile</b> , the <b>change your password</b> functionality (link) is hidden/buried within text.
<b>Example from iLumina:</b>

<p><b>Edit iLumina User Profile</b></p> <hr/> <p>Use the form below to change or add to your iLumina user profile. To change your password, send an email to the <a href="#">iLumina site administrator</a>.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Edit iLumina User Profile</b></p> <p><i>Required Information</i></p> </div>
<p><b>Usability Principle:</b> Layout functions to catch user attention.</p>
<p><b>User Action Framework Classification:</b> TBD</p>
<p><b>Estimated Importance Rating:</b> TBD</p>
<p><b>Suggested Possible Redesign:</b> Change the layout of the page and place the <b>Change Password</b> in the space next to the profile box, where it is likely to catch user's attention.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <div style="display: flex; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; width: 150px;">Virginia Tech</div> <div style="margin-left: 20px;"> <p><b>Change Password by sending an email to the site administrator.</b></p> </div> </div> </div>
<p><b>Location:</b> Access Homepage, click on <b>Profile</b> after logging in to the system.</p>
<p><b>Other problems subsumed:</b></p>

<p>Problem Number: C7.4</p>
<p><b>Usability Problem Name:</b> Registering with Email address</p>
<p><b>User Task:</b> Register (T4)</p>
<p><b>Usability Problem:</b> When the user registers with a system by providing his/her email address, it is likely that they may have concerns (about spamming for example) and might want to take a look at the privacy statement. But the privacy statement is located at the bottom of the page and is not very noticeable.</p>
<p><b>Example from iLumina:</b></p>

<b>Middle Initial</b>	<input type="text"/>
<b>*Last Name</b>	<input type="text"/>
<b>*Email Address</b>	<input type="text"/>
<b>*Password</b>	<input type="text"/>

**Usability Principle:** Supporting user task thread continuity and supporting human memory limitations by establishing a connection between two related parts of a task.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** On the 'Register as a New iLumina User' page, provide a link next to the **Email Address** text box to the privacy statement.

<b>*Last Name</b>	<input type="text"/>	
<b>*Email Address</b>	<input type="text"/>	<a href="#">Privacy Statement</a>
<b>*Password</b>	<input type="text"/>	

**Location:** Access Homepage, click on **Register** at the bottom of the page.

**Other problems subsumed:**

## Overall

**Problem Number:** C8.1

**Usability Problem Name:** Anthropomorphism

**User Task:** Overall

**Usability Problem:** The phrase **iLumina tries to** (as found under help) is anthropomorphism. This kind of usage of animate terms applied to inanimate objects can irritate the user.

**Example from iLumina:**

<p><b>Help</b></p> <hr/> <p><b>Plug-ins</b></p> <p>iLumina tries to makes its tools and services a              tried to anticipate your questions, but in case</p>
<p><b>Usability Principle:</b> Use appropriate word choices, and avoid the use of animate (example, human) terms and characteristics with inanimate objects.</p>
<p><b>User Action Framework Classification:</b> TBD</p>
<p><b>Estimated Importance Rating:</b> TBD</p>
<p><b>Suggested Possible Redesign:</b> Replace by something like <b>The iLumina system has been designed to</b></p>
<p><b>Location:</b> Under <b>Help</b></p>
<p><b>Other problems subsumed:</b></p>

<p>Problem Number: C8.2</p>				
<p><b>Usability Problem Name:</b> Incorrect wording – <b>Download</b></p>				
<p><b>User Task:</b> Overall</p>				
<p><b>Usability Problem:</b> The Resource Details page displays the label <b>Download</b> for a field that just contains a URL (which sometimes can lead to a download). Many of these URLs are just links to the resources and do not themselves invoke a download function. Hence the label <b>Download</b> could be incorrect and misleading in some cases.</p>				
<p><b>Example from iLumina:</b></p> <table border="1"> <tr> <td><b>Author(s)</b></td> <td>Michelle L Dunmars</td> </tr> <tr> <td><b>Download</b></td> <td><a href="http://usability.gov/guidelines/">http://usability.gov/guidelines/</a></td> </tr> </table>	<b>Author(s)</b>	Michelle L Dunmars	<b>Download</b>	<a href="http://usability.gov/guidelines/">http://usability.gov/guidelines/</a>
<b>Author(s)</b>	Michelle L Dunmars			
<b>Download</b>	<a href="http://usability.gov/guidelines/">http://usability.gov/guidelines/</a>			
<p><b>Usability Principle:</b> Use precise, complete, correct and consistent wording.</p>				
<p><b>User Action Framework Classification:</b> TBD</p>				
<p><b>Estimated Importance Rating:</b> TBD</p>				
<p><b>Suggested Possible Redesign:</b> Replace the label <b>Download</b> by <b>URL</b>.</p>				

**Location:** Access the Homepage, perform a search and click on any of the listings retrieved.

**Other problems subsumed:**

Problem Number: C8.3

**Usability Problem Name:** Three way inconsistency

**User Task:** Browse, Advanced Search, and Submit (T2, T1.b, T6)

**Usability Problem:** Three different terms have been used in the iLumina webpages to represent the same object. Under Browse, the term **kindofresource**, under advanced search, the term **Learning Resource Type** and under submit, the term **Intended use** have all been used to represent the same attribute. This inconsistency can cause a lot of confusion to the user.

**Examples from iLumina:**

Browse : kindofresource : Learner Tool

1 resources found

**Intended Use** of Learning Resource (use the CTRL key for multiple selections):

A screenshot of a web form showing a dropdown menu. The menu is open, displaying the following options: "None Specified" (selected), "Assessment", "Book", "Course", and "Dataset".

**Learning Resource Type:**

- |  |                                       |                                  |
|--|---------------------------------------|----------------------------------|
| <input type="checkbox"/> Lesson        | <input type="checkbox"/> Presentation | <input type="checkbox"/> Lab     |
| <input type="checkbox"/> Example       | <input type="checkbox"/> Exercise     | <input type="checkbox"/> Course  |
| <input type="checkbox"/> Demonstration | <input type="checkbox"/> Simulation   | <input type="checkbox"/> Dataset |

**Usability Principle:** Use precise, complete, correct and consistent wording.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Choose a single most appropriate term for the attribute and use that same term throughout the site whenever referring to that attribute. In this case **Learning Resource Type** would be a good choice.

**Location:** Access the Homepage, click on **Browse** and choose a category. Also look under **Advanced Search** and **Contribute**.

**Other problems subsumed:**

Problem Number: C8.4

**Usability Problem Name:** Tabs need organization

**User Task:** Overall

**Usability Problem:** The tabs lead to a mixture of both information-seeking tasks, administrative tasks and other interactive functionality. Organizing tasks by major task categories can reduce cognitive workload for users.

**Example from iLumina:**

[Home](#) | [Logout](#) | [Profile](#) | [Advanced Search](#) | [Browse](#) | [Contribute](#) | [Collections](#)

**Usability Principle:** Group related functions/tasks.

**User Action Framework Classification:** TBD

**Estimated Importance Rating:** TBD

**Suggested Possible Redesign:** Group the tabs by **Administration**, **Information**, and **Functions**. The Administration category would then contain the **Home**, **Login**, and **Register** links; the Information category would contain **About the iLumina Project**, **News** and **Help** links; and the Functions category would contain the **Advanced Search**, **Browse**, **Contribute** and **Collections**.

**Administration** **Functions**  
[Home](#) | [Login](#) | [Register](#) [Advanced Search](#) | [Browse](#) | [Contribute](#) | [Collections](#)

**Information**  
[About the iLumina Project](#) | [News](#) | [Help](#)

**Location:** On all pages, in the constant top frame and at the bottom.

**Other problems subsumed:**

<b>Problem Number:</b> C8.5								
<b>Usability Problem Name:</b> Broken Links								
<b>User Task:</b> Overall								
<b>Usability Problem:</b> The links for field names on the resource details page do not work. On locating a resource listing and clicking on the resource title, the resource record details are displayed to the user. The record consists of field names ( <b>GUID, Title</b> etc.) and the entries made by the submitter/system for each of these field names( <b>iLumina:920, Web Usability Testing</b> etc.). The field names are displayed as links, but clicking on any of these links doesn't lead anywhere.								
<b>Example from iLumina:</b>								
<table border="1"> <thead> <tr> <th colspan="2">Web Usability Testing</th> </tr> </thead> <tbody> <tr> <td><b>GUID</b></td> <td>iLumina:920</td> </tr> <tr> <td><b>Title</b></td> <td>Web Usability Testing</td> </tr> <tr> <td><b>Author(s)</b></td> <td>Michelle L Dunmars</td> </tr> </tbody> </table>	Web Usability Testing		<b>GUID</b>	iLumina:920	<b>Title</b>	Web Usability Testing	<b>Author(s)</b>	Michelle L Dunmars
Web Usability Testing								
<b>GUID</b>	iLumina:920							
<b>Title</b>	Web Usability Testing							
<b>Author(s)</b>	Michelle L Dunmars							
<b>Usability Principle:</b>								
<b>User Action Framework Classification:</b> TBD								
<b>Estimated Importance Rating:</b> TBD								
<b>Suggested Possible Redesign:</b> Update the links or remove links from these names.								
<b>Location:</b> Access Homepage, do a search to obtain the results page and then click on any resource listing.								
<b>Other problems subsumed:</b>								

<b>Problem Number:</b> C8.6
<b>Usability Problem Name:</b> Navigational links are arbitrarily bolded.
<b>User Task:</b> Overall
<b>Usability Problem:</b> The navigational links provided at the bottom of the iLumina pages are arbitrarily bolded. The links Home, Login and News appear grayed out (lighter color) while the rest of the links appear to be bolded. This could confuse the user into thinking that the bolded links are enabled while the lighter colored links are disabled, where as all links are enabled.

<p><b>Example from iLumina:</b></p> <p>Before login</p> <div style="border: 1px solid black; padding: 5px;"> <a href="#">Home</a>   <a href="#">Login</a>   <a href="#">Register</a>   <a href="#">Advanced Search</a>   <a href="#">Browse</a>   <a href="#">Contribute</a>   <a href="#">Collections</a>   <a href="#">News</a> </div> <p>After login</p> <div style="border: 1px solid black; padding: 5px;"> <a href="#">Home</a>   <a href="#">Login</a>   <a href="#">Register</a>   <a href="#">Advanced Search</a>   <a href="#">Browse</a>   <a href="#">Contribute</a>   <a href="#">Collections</a>   <a href="#">News</a> </div>
<b>Usability Principle:</b>
<b>User Action Framework Classification:</b> TBD
<b>Estimated Importance Rating:</b> TBD
<b>Suggested Possible Redesign:</b> If the bolding is arbitrary, redesign to make all the links uniform by changing the color of the Home, Login and News to that of the rest of the links. If the purpose is to gray out redundant links (like <b>Register</b> and <b>Login</b> after the user has logged in), then provide explanation right after the user logs in about this feature. In either case Home and News are always available to the user and probably should be made to look that way to the user. The same applies for the <b>Login</b> link before the user has logged in to the system.
<b>Location:</b> Access Homepage and scroll to the bottom.
<b>Other problems subsumed:</b>

## Specific questions about iLumina

**1) Is advanced search too advanced? Would it be better to have three levels of search with something added between quick search and advanced search?**

We agree that there is a huge gap between Quick Search and Advanced Search, but couldn't vote for having another level in-between or for reducing the Advanced Search complexity and sacrificing functionality. Having another level in-between could confuse the user's as to which one to choose. Also all the functionality on the Advanced Search page is useful and can be really used well to search for resources. Instead we suggest presenting the advanced search option in stages. Reduce the average cognitive load on the users by presenting the basic features first, with option to the user to obtain more search features should he/she need them.

**2) Do any of the browse categories need to be eliminated? Are there any that are more useful than the others?**

The Browse page design was one of the features that we liked most about the site and we do not find it too complex. The front page in Browse gives a very good view of the contents, in terms of attributes and values. Any link on the taxonomy path, but not the terminal node gives a listing of sub-nodes in the tree. On reaching the terminal node, the user gets a consistent view of the actual resources. All of this has been designed very well. As for the categories they seem appropriate.