Evaluating the Internet Public Library

INFO 608: Human-Computer Interaction

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Executive summary

To assess the quality of the Internet Public Library (ipl2) from a human computer interaction (HCI) perspective, our group created and used a series of evaluation tools to highlight the major usability issues experienced when using this site. The creation of our assessment instruments were based upon interviews we conducted with K-12 educators on how they utilize information resources to create lesson plans, disseminate information to their students and generally fulfill their duties as educators. We created personas and scenarios based upon their professions and information collected from the interviews; moreover, this lead to five unique personas and scenarios.

These personas & scenarios were then swapped with another group member to see if the ipl2 would fulfill the needs of a person similar to the created persona being used. While the ipl2 generally fulfilled its purpose by locating the needed information formulated by our scenarios, we encountered various usability issues which we recorded using a heuristic evaluation guideline created by Jakob Neilsen (2005), a pioneer in the field of design theory. As a group we agree the ipl2 needs revision in regard to four areas: site navigation, its search function, the lack of consistent implementation in page layouts, and the age appropriateness of their interface.

While we can appreciate the purpose and need for the Internet Public Library, the major flaws and violation of organizational principles of design need to be addressed in order for the site to fulfill its function of being a suitable resource for students and educators alike. We’ve prescribed a list of improvements and have given a variety of examples for the ipl2 to consider and model itself after.
**Introduction**

The Internet Public Library (ipl) has been exploring the role of libraries on the Internet since its creation in 1995 at the University of Michigan. The ipl was introduced as both a service organization for the general public and a digital learning environment for library and information science faculty and students. After a decade in existence, the ipl servers moved to Drexel University in 2007. Two years later a merger with the Librarians’ Internet Index formed a new version of ipl now named ‘ipl2’. This merger was intended to leap the library to the web 2.0 paradigm which is marked by technologies like AJAX and RSS that provide a rich user experience.

The ipl2’s statement of principles outlines its mission to “provide services and information which enhance the value of the Internet to its-‐ever-‐expanding and varied community of users”, to “work to broaden, diversify, and educate that community” and to “communicate its creators’ vision of the unique roles of library culture and traditions on the Internet” (ipl2.org). The ipl2 is designed to support the needs of various users from children in kindergarten to adults. The organization also supports the general utility of libraries and library services by providing vetted & meaningful collections to its users, a digital reference service and information instruction. The combination of these services allows users multiple access points to seek desired information.

**Project Overview**

The focus of our project was to examine the ipl2 website through the personas and scenarios of potential users. We used both the personas and scenarios as guidelines to conduct heuristic evaluations, which lead to the discovery of both major and minor issues in regards to the usability of the website. While we discovered many hiccups in the overall design of the ipl2, which we will address, we’ve also developed solutions that may improve the quality of the interface. We hope that through our heuristic evaluations, the ipl2 will implement some ideas similar to the ones our group has come up with.
Human Computer Interaction

Human–Computer Interaction (HCI) involves the study, planning, and design of the interaction between users (people) and computers. It is often considered as the intersection of computer science, behavioral sciences, and design. The term first appeared in *The Psychology of Human-Computer Interaction*, written by Card, Moran and Newell (1983). The Association for Computing Machinery defines human-computer interaction as a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use, with the study of major phenomena surrounding them. HCI studies the way users interact with computer information systems to ensure the usability of systems. There are many ways to test the usability of a system, but this report focuses on two methods: the construction of five distinct personas and scenarios and the use of heuristic evaluation.

Methodology

Personas & Scenarios

The construction of personas and scenarios are two distinct tasks that combine to form a tool in usability testing or evaluation. According to the third edition to *Interaction and Design*, “Personas are rich description of typical users of the product under development that the designers can focus on and design the product for” (Rogers, Sharp, & Preece, p.360). They don’t describe real people, but are realistic rather than idealized. A persona usually represents a synthesis from a number of real users who have been involved in data gathering. Each persona is characterized by a unique set of goals relating to the particular product under development, rather than a job description or job role. A persona often includes a description of the user’s skills, attitudes, tasks and environment. These items are defined specifically, and instead of describing someone as a seasoned teacher, they include specific detail such as, he has a Master’s in Education with over 20 years of teaching experience in New Jersey and Pennsylvania. Each persona has attributes like a name, often with a photograph, and some personal details including what they do in their leisure time. It is the addition of precise, credible details that help designers to picture the personas as real potential users; hence as people they can design websites on their behalf. Personas are therefore rich detailed descriptions of potential users that are paired with scenarios to complete a task by a potential user within a given system or interface.
According to the third edition of Interaction and Design, “A scenario is an ‘informal narrative description” (Rogers, Sharp, & Preece, p.374). It describes human activities or tasks in a story that allows exploration and discussion of contexts, needs, and requirements of the persona involved in the scenario. Using the vocabulary and phrasing of users means the stakeholders can understand scenarios, and they are able to participate fully in the development process. Personas are paired with scenarios to give a complete picture of potential users of an information system. In this report, individual team members constructed a distinct persona and scenario focusing on tasks within the five major sections of the ipl2. The persona and scenario of individual team members can be found in the Appendix of this report. These personas and scenarios were swapped amongst team members and each team member used another team member persona and scenario to perform their heuristic evaluation of the ipl2.

**Heuristic Evaluation**

Heuristic evaluation is a usability inspection method in which experts, guided by a set of usability principles test or evaluate user-interface elements; such as dialog boxes, menus, navigation structure, online help and so on. They examine to see if the designs of a user-interface conform to tried and true testing principles. The original set of heuristics identified by Nielsen was derived empirically from an analysis of 249 usability problems; moreover, the usability testing method was developed by Nielsen and his colleagues (Nielsen and Moh, 1990; 1994a; Nielsen, 1994b; Hollingshead and Novick, 2007). Heuristic evaluation (HE) is a usability inspection method often used in situations where involving direct users could either take too much time or cost a lot to evaluate the design of a user interface (Nielsen, 2005). Evaluators doing heuristic evaluations at some point typically converge to discuss and share their results. The evaluations are based on a set of ten usability heuristics or general principles for user interface design. These principles outline the common properties shared by usable interfaces. According to Nielsen (2005), “The output from using the heuristic evaluation method is a list of usability problems in the interface, with references to those usability principles that were violated by the design, in each case of the evaluator’s opinion.” This output from individual evaluators can then be compared with output from other individual evaluators to develop a more comprehensive picture of the usability problems found within that interface of an information system.

Another technique of Heuristic evaluation process is to rank the usability problems on a severity scale ranging from no problem to a usability catastrophe that should be addressed urgently. This severity rating enhances the evaluation process by giving evaluators a concrete way to communicate the depth of the problem and its impact on usability. Although heuristic evaluations do not provide a
definite way to develop solutions to usability problems, the detail analysis report often makes it much easier to develop potential solutions to usability problems of a user-interface.

**Summary of Personas Tasks and Scenarios**

As mentioned in the personas scenarios section above, individual team members constructed distinct personas and scenarios for potential users of the five major sections of the ipl2. Individual team members then swapped persona and scenario, and each team member performed the tasks outlined in the scenario from the perspective of their chosen persona. Individual team members carried out individual heuristic evaluations of the ipl2 from the perspective of their chosen persona. The results of their individual Heuristic evaluations were recorded in a tablet listing the problem, the corresponding usability heuristic numbers, and a severity rating. Individual team member heuristic evaluation can be found in the Appendix of this report. The team reviewed each member’s heuristic evaluation and developed a list of the top usability problems found within the ipl2. The team converged to discuss in depth how the problems violated usability principles or heuristics, the severity of each problem, and potential solutions to each problem. The results of this team discussion and evaluation are included within this report.
ipl2 Heuristic Evaluation Results

With the aid of Nielsen’s ten heuristics, the group identified four areas of the ipl2 that require a great deal of attention and revision in terms of complying with usability standards. These four areas, in order of priority, include the site’s Navigation, Search Function, Layout and the Age Appropriateness of the interface. The following will discuss the results of the heuristic evaluations in each of these areas.

Navigation

The ipl2’s navigation is the most troublesome element of the site. This aspect of the ipl2 could be classified using Jakob Nielsen’s severity ratings as a 4 or a “usability catastrophe: imperative to fix” (Nielsen, 2005). The navigation issues this paper identifies can be found consistently throughout the entire ipl2, justifying its catastrophic rating with the frequency, impact and persistency of the usability problems. The navigation issues encountered during evaluation revolve primarily around Nielsen’s heuristics of recognition rather than recall, consistency and standards and user control and freedom.

No Top Level Navigation

The ipl2’s navigation structure can be very confusing to the user, violating Nielsen’s heuristics of visibility, recognition, consistency and control. While the homepage provides the user with a very straightforward set of large, clickable menu options [Fig 1], once the user has clicked into one of these areas there is no indication of these top-level menu options on the interior pages [Fig 2].

Once a user has moved past the homepage to any other site location, they have lost the option to visit any of the major, top-level site areas. This is a major violation of the recognition rather than recall heuristic in that a user must remember that they have five major methods of browsing the
site, all but one of which are lost to the user when they click into a major category. As a real world example, suppose a parent has one child in elementary school and one child in high school. If they search for materials for the younger child in the **For Kids** area of the site they must remember to return to the homepage to access the section **For Teens**. If the person is a first time user, they might not recall that that option was available to them and, instead, exit the site and search for resources for teens elsewhere. This also violates one of the basic tenets of usability design for websites by which a designer should “avoid narrow, deep, hierarchical menus that force users to burrow deep into the menu structure” (Rogers, Preece & Sharp, 2011, p. 692).

The lack of a clearly defined top-level navigation hinders the user’s capability to gain access to all areas of the site. The current implementation relies far too heavily on the user’s ability to remember site structures that are unfamiliar to them.

**Poorly Executed Sub Navigation**

A user who delves deeper into the site is provided with sidebar navigation as well as a breadcrumb at the top of the content window. The lack

![Fig. 2 – The main page for the Resources by Subject option on the homepage. This page does not offer the ability to any of the other homepage top-level resources (i.e. For Teens or For Kids)](image)

![Fig 3a – Parent page, Entertainment and Leisure Section with sidebar navigation. Within the subnavigation of each section there are links to go even deeper into the subject.](image)

![Fig 3b – Child page, Home & Garden. On this page, which is within the Entertainment & Leisure section, the sidebar navigation from the parent page has been replaced with a new set of options.](image)
of these additional navigation tools on all of the site’s interior pages will be discussed in the Layout portion of this paper. While it is encouraging to the user to have an additional set of navigation tools, the sidebar uses the same formatting whether it is on a parent [Fig 3a] or child page [Fig 3b]. This lack of differentiation between higher and lower level pages increases the users inability to readily identify where they are on the site, increasing their need for recall rather than recognition and decreasing the users control and freedom (Nielsen, 2005).

The two areas that could prove the most useful in terms of overall site navigation, the breadcrumb [Fig 4] and the site footer [Fig 5], are implemented using the smallest font on the page resulting in a visual hierarchy that does not allow for full visibility of the importance of these features. The naming in the breadcrumb is also often inconsistent with the naming on the sidebar navigation, making the site incompliant with Nielsen’s consistency and standards heuristic. The footer, which aside from the search field is the only element of the website that remains static, is not only small but it is often buried under a huge scrolling page of search results. By relegating the only consistent link back to the homepage to the bottom of the page, ipl2 makes it nearly impossible to link back to the top level of navigation. The header image, which indicates the section in which the user is currently browsing, could also provide a consistent link back to the site’s homepage. Instead sometimes it links to the homepage,
sometimes it links to the category’s parent page and occasionally it links to a page that it is totally unrelated to the material being viewed. For example, a user who navigates to the children’s math and science section by using the For Kids homepage button will be sent to the Resources by Subject page if they click the For Kids top banner.

As presented in their text Interaction Design, Rogers, Sharp & Preece detail usability guidelines that were developed by Keith Cogdill which specifically address usability issues in web design. Included in these rules, which are based on Nielsen’s heuristics, is the concept that a user-friendly site will “provide navigation support, such as a strong site map that is always present” (692). The ipl2 fails completely when measured in these terms due its lack of a strong navigation. It also does not even provide the user with a link to its site map in each version of its footer.

No Obvious Back Button

The lack of a “back” button or obvious “undo” function ties into the general observation of a poorly executed navigation. The lack of escape violates Nielsen’s heuristic of user control and freedom. When combined with the missing top-level navigation, the lack of an “undo” function traps the user on their current page without any sense of how to return to the previous page. In essence the website relies too heavily on the browser’s back button, a function which might not always be apparent to novice users and, according to Nielsen’s writing on designing websites for children, is not used at all by young children (Nielsen, 2010).

Search

Since the search function appears on all pages of the ipl2, usability of the interface and results become integral to how users interact with the site. There are a number of key issues with the search function and the results it produces. These usability issues focus primarily around Nielsen’s heuristics of visibility, recovery from errors and the matching of the system to the real world.

No Hierarchy of Search Results

The modern user expects their search results to have an apparent hierarchy, with the most useful links displayed first. There is also an expectation that a user will be able to sort results by simple sets of criteria. The ipl2 lacks a coherent sense of order in its search results, which not only inhibits the speed with which the user can find useful information but could also lead them to question the information’s relevance and validity.
In one of the scenario’s used by the group to test the ipl2, a user was attempting to search for “linear equations” and was presented with first page results including a link to information about the “International Linear Collider”. The more useful search result, “SOS Mathematics”, was found on the second page of results. This inability of the ipl2 to be transparent about the results that are being returned by keyword searches can cause the user to mistrust the information when they do finally happen upon it. This lack of hierarchy directly conflicts with Nielsen’s heuristic of matching the system to the real world because the “information appear in a natural and logical order”.

Confusing Advanced Search Options

The inability of ipl2’s search function to match the real world is amplified in the language and setup of its Search Help link. Found in the lower right corner of the search box, Search Help appears to be a promising fulfillment of Nielsen’s help and documentation heuristic. The Search Help page, however, does not “speak the users' language, with words, phrases and concepts familiar to the user” as Nielsen would require in his match between the system and the real world heuristic (Nielsen, 2005). Instead, the ipl2’s advanced search is set up to use search functions that have more similarity to coding language than they do to human language [Fig. 6]. By not creating a Graphical User Interface (GUI) that does these advanced operations for the user, ipl2 is limiting the depth at which a novice user is able to use the system. The system language operators also increase the inability of an advanced child user to be able to conduct complex searches, limiting the overall ability of the user to extract useful information from the site.

![Search Help documentation](image)

Fig. 6 – The Search Help documentation is not written for a user who is unfamiliar with the system language. In order to perform advanced searches the user is expected to understand coding syntax and complex operators.
Inability to Correct User Mistakes

The search function of ipl2 is incapable of suggesting spelling corrections. When presented with a common misspelling, the search turns up an error message [Fig. 7]. The inability of the system to recover from and correct this particular type of error could create an insurmountable barrier for school age children using the site whose spelling ability may be at a beginner level.

There is further an issue with the results of a misspelled search, which relates to Nielsen’s help and documentation heuristic. The error message that is returned when a misspelled search is submitted contains a number of helpful suggestions for resubmitting the search, such as trying a different keyword, but nowhere in this help text does it suggest that the user should simply check their spelling.

Layout

The overall appearance of the ipl2 is problematic, not only from an aesthetic standpoint but also in terms of usability. In addition to not abiding by Nielsen’s heuristic of aesthetic and minimalist design, the site is riddled with inconsistencies in how the content is displayed which directly conflicts with the heuristics of consistency and standards and recognition rather than recall.
Inconsistent Page Template

The ipl2 page layout is inconsistent from category to category. While the search by subject pages are all laid out according to the sidebar navigation template seen in Fig. 3a, the rest of the site’s pages are each laid out according to what appears to be a unique template. [Fig. 8] As discussed in the navigation portion of this paper, the only constant elements on each page of the ipl2 are the search bar and the footer. While the use of a banner graphic to indicate location is consistent throughout the site, this banner changes its color and image to correspond with the category/subject matter of the selected page. This would be an effective tool if the site did not often reference/link to pages from other categories. This constant change in visual location cues creates the impression that, even if the referenced material is relevant, the user has left the area of the site in which they intended to browse. The site’s inability to create a consistent look, feel and interaction even within one major category confirms its violation of Nielsen’s consistency and standards heuristic while by being incapable of “[providing a] consistent look and feel for navigation and information design” (Rogers, et al., p. 692).
Scrolling Pages

In addition to the inconsistency in page layout, the often excessive scrolling of pages lends itself to providing poor usability according to Nielsen’s heuristics and Cogdill’s interpretation of them for the web. One of Cogdill’s six guidelines for navigation design advises designers to “avoid long pages with excessive white space that force scrolling” (Roger, et al., 2011, p. 692). The ipl2 is filled with pages that seem to endlessly scroll plain text & links. Fig. 9 shows only one third of the site’s History subject page. This aspect of the site’s layout can be seen as even more problematic when viewed in terms of Nielsen’s guidelines for designing for children. Nielsen recommends avoiding scrolling all together for younger children while intermediate to teenage users often prefer to scroll to read (Nielsen, 2010). This disconnect between the ability levels of the intended users of ipl2 creates another layer of usability issues to be discussed next.

Age Appropriateness of Design

As mentioned in previous sections, the site’s intended audience amplifies many of the usability issues found in the ipl2. In a study released in 2010 conducted by the Nielsen Norman Group, led by Jakob Nielsen, 90 children were tested to determine usability standards for designing websites for children. One of the major findings of this study was that there is a “need to target very narrow age groups when designing for children” (Nielsen, 2010). Nielsen expands upon this topic by explaining that there is no one design that works for all children. This proves very problematic for ipl2 since the site is attempting to cater to children and teens grades K – 12. The report’s executive summary describes teenage interaction as being closer to that of adults and identifies three major age groups that require targeted design: young (3–5), mid-range (6–8), and older (9–12). By failing to differentiate the overall design and presentation of content for different age groups, the ipl2 essentially fails at successfully reaching any of its segmented targeted audience.

Lack of Age Appropriate Visual Cues

One of the major impediments for younger children using the ipl2 is the lack strong visual cues relating a text link to the material they will be accessing. There is an attempt to create Nielsen’s match between system and the real world with the use of
graphic icons in the search by subject sections of the website. While the small icons next to the text links [Fig. 10] may prove useful to younger children it seems to lose its usefulness because this visual cueing system is not carried through on the internal pages of a subject (i.e. the palette and paint brush icon that indicates the Arts & Humanities section of the website is only present on the homepage for Resources by Subject).

**Effect of Previous Usability Concerns on Designing For Children**

According to Nielsen, “Kids and adults are different, and kids need a design style that follows different usability guidelines” (Nielsen, 2010). With this in mind the navigation issues discussed above are catastrophic for an adult but while Nielsen indicates that multiple navigations can be slightly confusing for adults it proves to be very confusing for children. This also falls inline with the search and layout flaws indicated above, what is annoying and bothersome for an adult to navigate might be outright impossible for a child. The deep menus, inconsistent page layout and clumsy search options and results could frustrate the average school aged user to the point of exiting the site and never returning.
Recommendations

Navigation

The navigation of the ipl2 requires a great deal of revision in order to comply with Nielsen’s heuristics and Cogdill’s site navigation suggestions. The site would benefit from a completely new, top level navigation, preferably by condensing the submenus into dropdown menus that fall from a main navigation consisting of the five main categories found on the current homepage. An example of this type of design can be seen in the New York Public Library’s website [Fig. 11]. In this example, the main areas of the site are defined in the navigation bar with the sub navigation included as dropdown menu options. This full menu is available on every page of the site, allowing the user to move with ease from one section to another. This improvement to ipl2 would enhance the user’s ability to navigate the site and bring the site in compliance with Nielsen’s heuristics of visibility, recognition, consistency and control. This would also bring the site in line with Cogdill’s call to stay away from deep menu structures.

Search

The ipl2’s search function provides consistency to the page structure of the current site but lacks a coherent advanced search function, hierarchy or sorting of the search results and spelling error correction. These issues could be solved by providing advanced search features written in human language rather than system language, producing search results that have the most relevant results appear first, giving users an interface option to sort their results by specific criteria.

Fig. 11 – The New York Public Library website [www.nypl.org] provides an excellent example of top-level navigation with clearly defined subnavigation.

Fig. 12 – Google’s advanced search provides the user with easy to use filter fields written in plain English.
and offering spelling corrections during the search. These options would satisfy the heuristics of matching the system to the real world, making the system more visible and accommodating error recovery.

Google provides the best example of a search function that addresses all of these user needs. The advanced search function of Google [Fig. 12] gives the user the same flexibility of searching that is found in the ipl2 but Google’s advanced search provides users with a GUI written in plain English that does not require them to learn complicated system syntax.

Google also solves the hierarchy and sorting of search results through providing the user with the most relevant searches at the top of the returned list of results [Fig. 13]. Users are also provided with the option to sort their results in a number of ways including by images, blogs, or news. By providing the user with more accurate and flexible search results Google accommodates both novice and advanced users.

Finally, Google’s ability to offer the user several different options for words misspelled by the user [Fig. 14] allows that user to recover from their error and continue their research.

**Layout**

The ipl2 also requires an overall page layout redesign. The new layout should provide a consistent page structure that does not require users to remember where page elements are from section to section or from page to page. This redesign would go hand-in-hand with a total redesign of the site’s navigation. By reorganizing the navigation into a top-level, dropdown menu that is present on all pages, space becomes available where the bulky sidebar navigation had resided. This space can be used to create several, similar layouts that are capable of accommodating the wide array of content.
available on the ipl2. This type of design can once again be observed in the New York Public Library’s website [Fig. 11].

The ipl2 can easily alleviate its excessive use of page scrolling by arranging long lists of materials into a series of pages that can be accessed through both a next and back button as well as a list on hyperlinked page numbers.

**Age Appropriateness**

In some ways the age appropriateness of the ipl2 will be addressed by the recommendations above since, according to Nielsen, “many of the basic rules for usable Web design are the same for children and adults” (Nielsen, 2010). However, the lack of interface separation for the age groups does limit the actual usefulness of the ipl2 by the full range of K-12 students for which the website provides resources.

In order to address the different interface needs of this wide range of young users a login feature could be added to the ipl2. This login could separate the content and interface design by age range, making the younger children’s site view more exploratory and experiential and providing the teens with a more adult interface (Nielsen, 2010). Login features can be found on sites aimed at all ages, they not only provide a means of separating user content but they also create a more personalized experience.

In a redesign under this scenario, the ipl2 would benefit from modeling its section for younger children on the website for the children’s educational television show Sesame Street [Fig. 15]. Sesame Street provides its young users with both large graphic visual cues as well as verbal guidance. This site also features a user login area [Fig. 16]; providing an example of the use of a login feature intended for very young children.

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**Fig. 15** – The Sesame Street website ([www.sesamestreet.org](http://www.sesamestreet.org)) provides its young users with large colorful navigation options that are also accompanied by verbal direction.

**Fig. 16** – A log in feature would allow the ipl2 to segment its content and interfaces by the user’s age, thereby not alienating one group with an over simplified interface or the other with an overly complicated interface.
Limitations of the study

The best method to discover usability issues on a website is by merging several information gathering methods. Personas are only as good as the research put into them and scenarios are not meant to discover a full set of requirements (Sharp, Rogers, Preece, 2007, p.506). According to The Research-Based Web Design and Usability Guidelines Book, the first chapter states that a successful project needs at least four different sources of information to be successful (Bailey, Koyani, Nall, 2004).

Due to the short time span of our project, we were not able to evaluate the entire website and as a result our team only evaluated a small sample of information within the five main sections. With five members on a team Neilsen found that evaluators discover about 75% of the total usability problems (1992). Our team used heuristic evaluation as the sole inspection method that could be disadvantageous to fully depend upon. Heuristic evaluations may not scale well for complex interfaces (Slakovic & Cross, 1999). Since our team consisted of only five members, a small number of evaluators may not find all the problems within complex website interfaces such as the ipl2, and thus many serious problems may have gone unseen. Also the heuristic evaluation limited each team member to only emulate the users. Actual user feedback can only be obtained by involving potential users in the heuristic evaluation. Lastly heuristic evaluations may be prone to reporting false alarms - problems that are reported that are not actual usability problems in application (Jefferies et al, 1994). Consequently these problems may not always readily suggest solutions for usability issues that are identified. To reduce the possibility of missing a major problem, our group focused on the common problems we found on the ipl2 site through each team member’s heuristic evaluation worksheet.
Conclusion

The Internet Public Library is a digital warehouse of information purposed to educate students, teachers and the general public. It has assumed the daunting task of organizing internet resources for varied audiences in a space where content is constantly changing. While we found a multitude of problems in regard to its design and usability, we believe if the Internet Public Library makes an effort to alleviate the problems we’ve highlighted in this report, they will be able to construct a site that adheres to important design principles.

The most pressing issue is the lack of top-level navigation. We propose drop down menus that include all five main categories of the ipl2 site to be featured on every page. This addition will enhance the user’s ability to navigate the site as well promote sound design principles such as consistency.

Moreover, drop down menus will allow the user to exert more control over their experience. The second point of concern is the lack of hierarchy of search results when using the search bar function. We’ve suggested the ipl2 model its search function after Google due to Google’s ability to create a hierarchy of relevant search results. In addition, Google’s search bar gives users the ability to recover from error by suggesting the correct or alternative spelling.

We believe the ipl2 would benefit from a new layout that is consistent from page to page. This would compliment and enhance the restructuring of the website’s navigation. It would also foster best practices in regards to usability and design principles. The last point of contention is the lack of age appropriateness or inability to have an interface that is designed to fit the needs of young users. While the basic rules for creating sound websites are same when dealing with both adult or child audiences, we believe giving children an option to create a username login can enable children to keep track of what they’ve learned and explored.

The ipl2 needs to vastly improve their website design to adhere to principles of good design. While we recognize certain changes need to take place, we respect & value their ambitions to provide the public with information they can trust. A commitment to design improvement will help the ipl2 become a popular information resource in the field of education and for the public at large.
References Cited


Appendix I: Team interview instrument
Introduction of interviewer

Hello, my name is ____________________________, and I have been asked to interview you about K–12 studying and instructional resources.

During the interview, I would like to discuss the following topics: research for school projects and instructional resources for K–12.

With these topics in mind...

Demographic Information

1. Name
2. Age
3. Occupation
4. Location
5. Family
6. Education
7. Level of comfort with technology
### Studying and instructional resources K–12

<table>
<thead>
<tr>
<th>Main Questions</th>
<th>Additional Questions</th>
<th>Clarifying Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where is the first place you would look for information on a subject about which you knew nothing?</td>
<td>Where else would you look if you didn’t find everything you were looking for?</td>
<td></td>
</tr>
<tr>
<td>Can you tell me about the problems you’ve encountered?</td>
<td>How do these problems locating materials for your classroom affect your research or study?</td>
<td></td>
</tr>
<tr>
<td>Do you ever visit a physical library or an online library to do research?</td>
<td>Do you ever consult a librarian?</td>
<td>Can you expand a little on this?</td>
</tr>
<tr>
<td><strong>Could you describe your comfort level with your ability to do research on a new subject?</strong></td>
<td>How did you reach that level of comfort?</td>
<td>Can you tell me anything else?</td>
</tr>
<tr>
<td>Can you give a recent example of where you were planning a lesson plan that required students to do research?</td>
<td>Did you recommend any resources to them?</td>
<td>Can you give me some examples?</td>
</tr>
<tr>
<td><strong>What are your favorite resources to use?</strong></td>
<td>What percentage of your students has access to a computer at home?</td>
<td>Why?</td>
</tr>
<tr>
<td>How much classroom time is used working with computers?</td>
<td>What computer resources does your school provide?</td>
<td></td>
</tr>
</tbody>
</table>

Can you give me some examples? Why?
Appendix II: Individual interview notes
Demographic Information

1. Name: Heather
2. Age: 31
3. Occupation: K-12 educator
4. Location: San Francisco
5. Family: Recently married to her long time boyfriend and soon to be lawyer, Tom. They share their living space with two maine coons cats: Norris & Evee.
6. Education: Bachelors in English, Masters in Teaching from San Diego State
7. Level of comfort with technology: Comfortable

Interview:

Conducted Monday March 5th via telephone 10pm to 11pm EST

1) Where is the first place you would look for information on a subject about which you knew nothing?

First I would go to Google to conduct a search on the topic. Then I would look the subject upon Wikipedia.org. Despite the fact that conducting research on these sites is sometimes looked down upon, I find these sites to be the quickest path to the information I need. I always verify the source of the information.

a) Where else would you look if you didn’t find everything you were looking for?

While I was obtaining my master’s degree, I used the internet databases from San Diego State. Now, if I can’t find some needed information, I usually check to see with other teachers at my school if they have what I need.

2) Can you tell me about the problems you’ve encountered while searching for information?

Coming across sources that are unreliable in terms of credibility.

a) How do these problems locating materials for your classroom affect your research or study?

It takes longer to find what you need to create lesson plans. If I come across questionable material I have to cross reference with a book I own. Or I will go down to Booksmith, a small bookstore that has a large selection of K-12 appropriate books located in the Haight [neighborhood in San Francisco], which is only a few blocks away from where I currently live.

b) If you’re having trouble finding resources, whom do you consult?

As stated previously, I will consult fellow teachers or our school librarian.

3) Do you ever visit a physical library or an online library to do research?
I frequent the San Francisco Public Library and our school’s library. In addition, I use the digital libraries such as Discovery Education, which is video based, Ebscohost for Kids and Proquest K-12.

a) Do you ever consult a librarian?

Our school librarian meets with faculty once a week at staff meetings. I usually consult her about twice a month.

b) Do you use books, periodicals, websites?

Yes.

4) Could you describe your comfort level with your ability to do research on a new subject?

I feel very confident when conducting research on a new subject.

a) How did reach that level of comfort?

While obtaining my masters in education, we conducted extensive research to complete school assignments. Furthermore, I graduated recently and am well versed in digital research.

5) Can you give a recent example of where you were planning a lesson plan that required students to do research?

I currently teach kindergarten, but the last two years I taught a combined fourth and fifth grade class. For the fourth & fifth grade class I had them research animal food webs.

a) Did you recommend any digital resources to them?

I didn’t recommend websites per say; however, we did go over in class how to determine what may be better websites than others. We also go over some educational and/or recognizable websites such as PBS, Encyclopedia Britannica for Kids, or the Discovery Channel websites, etc. They were able to use the Google search engine. I told the kids if they could find the information on two different websites, they were allowed to use that information. I also had them justify to me why they thought the website they were using was legitimate, which for fourth and fifth grade usually boils down to whether they’ve recognize the source. However I did not let them use Wikipedia, and explained to them why it isn’t appropriate to cite Wikipedia for school assignments.

b) Which other resources did you recommend?

I would always take students to the school’s library in addition to taking them to the computer lab to do research. At this juncture I would point out physical encyclopedias or other reference materials the school has in its possession.

6) What are your favorite resources to use?
While I was attending San Diego, my favorite was their education database. Currently I Google is the primary source I go to when conducting research.

**a) What do you like about them?**

The database San Diego State offered was fantastic, allowing me to go through periodicals, articles, etc., using filtered searches. I was always able to find what I needed and I wish that I still had access. I use Google because it’s fast & convenient and I don’t have to log in to find any information.

**7) How much classroom time is used working with computers?**

In the classroom, my kindergarten kids are on the computer about 15 minutes every other day.

**a) What percentage of your students has access to a computer at home?**

85 or 90 percent

**b) What computer resources does your school provide?**

Each classroom is equipped with 6 computers with half of them being able to access the internet. In addition to the computers in the classroom, there is a computer lab upstairs that has 20 computers with all of them having access to the internet. Each device that has internet has access to a subscription we have to Raz-kids. It’s an ebook subscription that can either read to the kids or the kids can read themselves; moreover, students answer programmed questions about the books online. We also use Starfall.com, which helps children at a kindergarten learn to read with phonics.

Teachers use a separate computer provided by the school to access the school district’s database to record grades and make notes. Because this computer also has access to the internet, for me it doubles as a computer to create lesson plans/conduct research.
Demographic Information

1. **Name:** Julianne Stokes

2. **Age:** 61

3. **Occupation:** Elementary School Librarian

4. **Location:** Warminster, PA

5. **Family/Personal Life:** Two adult children out of the house, currently lives with husband and two cats. Julianne gets to work early and often works late either at school in at home. She spends much of her free time going to plays, museums and concerts.

6. **Education:** BS in Political Science, MS Library & Information Science

7. **Level of comfort with technology:** Very comfortable. Automated Library Catalog (web based), Smart Board, Smart Notebook, Laptop

Interview Questions

1. **Where is the first place you would look for information on a subject about which you knew nothing?**
   Online encyclopedia: School subscription to World Book online. Then to Google for a broader search to find scholarly/trust worthy materials. She tries to practice what she preaches in she tells students to find keywords first on a specific topic to make their search for resources more productive.

   a. **Where else would you look if you didn’t find everything you were looking for?**
   Professional journals, online vendor site: Follett which provides supplementary materials for books that have been purchased from them, professional association site (ALA, AASL, PSLA). Materials to support instruction in the classroom both library sites
and websites aimed at educators. The library sites tend to be well organized, so the information is very easy to find whereas the sites aimed at educators are generally hard to navigate.

i. What type of information are you looking for?
Information relating to literature for a K-5 audience, curricular links for classroom instructions. For professional development materials for herself and her colleagues.

2. Can you tell me about the problems you’ve encountered?
The number one problem is that she is not able to find what you’re looking for, this doesn’t happen very frequently about 1 out of 100 times or so. Very infrequently is a website she’s trying to access not working so generally her inability to find something is dependent upon her search criteria not producing anything that can be used by her students.

a. How do these problems locating materials for your classroom affect your research or study?
Bring research to a total halt, so she is unable to support the needs of students and teachers.

b. If you’re having trouble finding resources, who do you consult?
Go to professional association sites. Not interacting directly with peers on these sites usually just searching for other resources and tips. She will occasionally send a query to librarians in her own district via email.

3. Do you ever visit a physical library or an online library to do research?
Since she is a librarian she spends her entire day in a library so she is constantly using her own library resources. In addition to this she will use her district wide catalogue occasionally, to do an inter library loan. She will also visit the public library online, to view online literature and databases that aren’t provided through her employer. She will use Tumble books, to view electronic renderings of print materials. Could check out e-books from the public library but never does. Her school district is only just beginning to use e-books. Her school’s library catalogue is accessible to anyone. Links to resources as well as catalogue of physical books.

a. Do you ever consult a librarian?
Yes, has relationship with the librarian at the public library. Communicate via email about issues, questions and resources. Never uses online chat feature.

4. Could you describe your comfort level with your ability to do research on a new subject?
Anything related to the K-5 environment very comfortable with. (Said was not comfortable with her ability to do comprehensive research on neuroscience).

a. How did reach that level of comfort?
Through experience, 15th year in the job, always been comfortable doing research and is also accustomed to the constant change in the process by which you access information. This process has changed a great deal during her career. Masters degree equipped her to do her job with a fairly high level of comfort. Part of the culture of being in Library Science is to be flexible in terms of changing environments, expected to be on the cutting edge of information retrieval. The professional philosophy is that you will be able to do professional development for the staff by gaining the information and passing it along. If you don’t know something you figure out how to find it, that is her primary professional role.

i. Do you use books, periodicals, websites?

Websites, preferring websites for the initial research and print materials for further reference. Uses her library’s online catalogue first. Students still using print material to retrieve information as well as online.

5. Can you give a recent example of where you were planning a lesson plan that required students to do research?

Example 1 – Read-Aloud to 4th and 5th graders of 1000 Paper Cranes. Using smart-notebook to create lessons for the interactive smart-board. Needed to introduce Hiroshima to her students as part of this lesson so she searched for a peace site in Japan to get additional details about the story so she could provide background information for her lesson.

Example 2 – First grade, researching countries of origin in order to make a family crest. The students used a subscription database provided by the school district called CultureGrams. Modeled a series of lessons that taught students how they would go to the subscription site, log in and find the country they were looking for. Worked out questions that needed to be answered ahead of time and mapped the lesson to show them where to go to answer those questions.

The CultureGrams resource was indentified and provided through her school districts Intermediate Unit (IU), a above the school district level that make resources available to schools on the subscription basis.

Example 3 – Fourth grade project on Bats, focused on white nose syndrome that is effecting bats. Julianne did online searches (Google) for professional organizations that are appropriate for the students also used the academic search available on Google. Students are not allowed to use Google in her school so she spends time on Google identifying sites that provide reliable information for specific projects. Most of the sites she identifies as such are: government, university, research, nonprofit orgs, and museums. She then posts these sites on her own library website and disseminates this information to students and teachers.
Many of the resources are defined by a curriculum committee, who gather information and pass it to the teachers. If these resources are not as useful as the committed thought they might be then teachers will approach Julianne for more information. She will then do Google searches. Doesn’t use academic journal article sites nearly as much as she had in previous years. Will use links that are written up in her professional library journals. Blind search start with Google after identifying keywords.

a. Did you recommend any resources to them?

In the case of CultureGrams she recommends this to students not only because it is a resource that is part of the curriculum but also because print materials go out date so quickly and they are so expensive. She will occasionally also use the statewide network of libraries called Access PA through the Power Library website provided by the state.

6. What are your favorite resources to use?

Google, Culture Grams, World Books – Not nessecarily because they are her favorite to as a user but because the provide the best information.

a. What do you like about them?

Doesn’t necessarily like the resource but has to model the resource after what the kids can use and what is appropriate information and reading level for their age group. Uses World Book, Culture Grams and the library catalogue because they are age appropriate. There are very few resources available aimed at emergent readers (K-5).

7. How much classroom time is used working with computers?

Students coming to the library for instruction use computers all the time because the library catalogue is web based. Julianne estimates that about 50% of their time in the library is spent interacting with computers. Most lessons and instruction in her library are smart-board based. For literature lessons half the instruction is computer based the other half is a read-aloud from an actual book. Information literacy lessons are almost entirely computer based.

a. What percentage of your students have access to a computer at home?

About 90%

b. What computer resources does your school provide?

School can not make homework computer based because it’s not equitable. Maybe 20% of regular classroom time is computer based. Her school has 6 mobile carts with 25 Mac Books on each cart. 350 students 150 computers not counting staff computers or library computers. She indentified her school district as technology rich.
Demographic Information
1. Name: Maureen Brown
2. Age: 43
3. Occupation: Elementary/Middle School Technology Teacher
4. Location: Philadelphia, PA
5. Family: Happily married with two kids
6. Education: BS Elementary & Early Childhood Education/MS Technology in Education
7. Level of comfort with technology: Very comfortable

Note: Interview responses are bolded, colored red and in ITALIC font

<table>
<thead>
<tr>
<th>Main Questions</th>
<th>Additional Questions</th>
<th>Clarifying Questions</th>
</tr>
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<tbody>
<tr>
<td>Where is the first place you would look for information on a subject about which you knew nothing?</td>
<td>Where else would you look if you didn’t find everything you were looking for?</td>
<td>Can you expand a little on this?</td>
</tr>
<tr>
<td><em>I would first look on the internet/google</em></td>
<td><em>I would search the internet for More detailed, specific sources on the internet</em></td>
<td>Can you tell me anything else?</td>
</tr>
<tr>
<td>Can you tell me about the problems you’ve encountered?</td>
<td>How do these problems locating materials for your classroom affect your research or study?</td>
<td>Can you give me some examples?</td>
</tr>
<tr>
<td><em>My major problem in teaching the kids is preventing from going on inappropriate sites</em></td>
<td>If you’re having trouble finding resources, who do you consult?</td>
<td>Why?</td>
</tr>
<tr>
<td>Do you ever visit a physical library or an online library to do research?</td>
<td><em>I contact the district department for technology for resources specific to my curriculum when am having difficulty locating instructional materials.</em></td>
<td></td>
</tr>
<tr>
<td><em>I visit physical library to help my kids</em></td>
<td>Do you ever consult a librarian?</td>
<td></td>
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<tr>
<td>Find prescribed text materials to complete their assignment</td>
<td>Yes</td>
<td></td>
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<td></td>
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<tr>
<td>Do you use books, periodicals, and websites?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Could you describe your comfort level with your ability to do research on a new subject?</td>
<td>Very comfortable</td>
<td></td>
</tr>
<tr>
<td>How did you reach that level of comfort?</td>
<td>I am very comfortable doing research due to many years of experience doing research and training in this field</td>
<td></td>
</tr>
<tr>
<td>Can you give a recent example of where you were planning a lesson plan that required students to do research?</td>
<td>President’s day research on a given president for a PowerPoint project</td>
<td></td>
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<tr>
<td>Did you recommend any resources to them?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Which resources did you recommend?</td>
<td>Enchanted learning, google, ask</td>
<td></td>
</tr>
<tr>
<td>What are your favorite resources to use?</td>
<td>Enchanted learning</td>
<td></td>
</tr>
<tr>
<td>What do you like about them?</td>
<td>They have easy reading level materials for grade school kids, basic info/good starting point for beginners</td>
<td></td>
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<tr>
<td>How much classroom time is used working with computers?</td>
<td>All of my classroom time is done on the computer</td>
<td></td>
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<tr>
<td>What percentage of your students has access to a computer at home?</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>What computer resources does your school provide?</td>
<td>My school provides a laptop for each student and ensure that each student sit about two hours technology class besides their research time on the computer</td>
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</table>
in their home room
Demographic Information
1. Name: Abdul Musah
2. Age: 25
3. Occupation: High School Mathematics Teacher
4. Location: Houston, TX
5. Family: Recently engaged
7. Level of comfort with technology: Very comfortable. Uses Smart Board, iPad, Laptop, Projector, MobiView, Smart phone

Interview Questions
1. Where is the first place you would look for information on a subject about which you knew nothing?
I type the subject’s keywords into Google search bar.
   a. Where else would you look if you didn’t find everything you were looking for?
      Go to www.tfanet.org. This is a portal for all Teach For America (TFA) Corps Members, Alumni and Staff to share all kinds of resources for K-12 students.

2. Can you tell me about the problems you’ve encountered?
The only problem I may have is not finding the precise information I am searching for. However I rarely experience that because I am always very specific in the keywords I enter into the Google search bar and consequently it returns positive and accurate results.
   a. How do these problems locating materials for your classroom affect your research or study?
      It does not affect research as much because I then can consult my colleagues and math textbooks for information such on finding worksheets/problem sets for the prospective topic.
   b. If you’re having trouble finding resources, who do you consult?
      I consult colleagues and/or ask for a resource through the tfanet portal.

3. Do you ever visit a physical library or an online library to do research?
No
   a. Do you ever consult a librarian?
   No

4. Could you describe your comfort level with your ability to do research on a new subject?
   Very comfortable on searching for mathematics and science information related to 9-12 grades.
   a. How did you reach that level of comfort?
      In my first few months as a TFA member, I went through a rigorous training and professional development before I started teaching in the classroom. Through the various trainings I learned various ways to search for information and materials for my students.
      i. Do you use books, periodicals, websites?
         I first use Google then log into tfanet.org for more information and print materials. I also consult various math textbooks which were given to me by
the school district.

5. Can you give a recent example of where you were planning a lesson plan that required students to do research?
No

6. What are your favorite resources to use?
Google and TFANet
   a. What do you like about them?
      It is very simple and easy to find information. With Google, I am able to get precise information once I type in detailed keywords. TFAnet serves as a common ground to meet and share similar information and materials, such as lesson plans and worksheets, among other corps members.

7. How much classroom time is used working with computers?
100%. I use a smartboard, projector and/or MobiView to teach in class at all times.
   a. What percentage of your students have access to a computer at home?
      About 30% because I teaches at a low-income area school.
   b. What computer resources does your school provide?
      About 100 desktop computers are made available to students at the library.
Demographic Information

1. Name: Jeff Fitzwilliam

2. Age: 41

3. Occupation: Clinical Social Worker at a special needs high school (teaches sex ed and career counseling)
   Small private school progressive education integrated learning interdisciplinary learning experiential learning emotional health physical health too. ADD & learning differences. Major splits in psycho educational testing between skill sets. Kids with emotional challenges. Works with 5 MSW student interns.

4. Location: Philadelphia

5. Family: Partnered

6. Education: Master of Social Work (MSW)

7. Level of comfort with technology: sophisticated consumer of technology
Studying and instructional resources K–12

1. Where is the first place you would look for information on a subject about which you knew nothing?

Google, then Wikipedia

2. Where else would you look if you didn’t find everything you were looking for?
   a. EBSCO
   b. Nytimes.com
   c. Npr.org
   d. Philly public library
   e. For sex ed classes: the websites Savage Love, Midwest Teen Sex Show, ScarletTeen, Planned Parenthood, It Gets Better, Make It Better
   f. For career counseling class: CareerCruising .com

3. Can you tell me about the problems you’ve encountered?

For sex ed, it’s hard to find age appropriate material for 9th graders (14-15).

4. How do these problems locating materials for your classroom affect your research or study?

You make do with what you have and supplement it yourself

5. If you’re having trouble finding resources, who do you consult?

Technology Coordinator, English teachers, history teachers, call his sister the librarian

6. Do you ever visit a physical library or an online library to do research?

Not so much an online library, but he does use Google scholar. Chestnut Hill or Mt Airy branches occasionally; doesn’t usually have time to leave work, so it’s rare. Clinical Social Worker listserv.

7. Do you use books, periodicals, websites?

Books for interns, journal articles, websites

8. Could you describe your comfort level with your ability to do research on a new subject?

“I’m a resourceful guy.” I know I can always find the right people to ask or find it myself.
9. How did reach that level of comfort?

Mom always took him to the library as a kid for research, vertical file, card catalog; dad loved reading at the library and would take them. Prepared for high school debates there. Knew adult librarians socially as a child.

10. Can you give a recent example of where you were planning a lesson plan that required students to do research?

Last week, students had to research two careers they’re interested and do a class presentation.

11. Which resources did you recommend?

   a. Careercruising interest inventory.

   b. Nothing else, students needed to hand held

12. What are your favorite resources to use? What do you like about them?

Google is a no brainer, it’s a fast search engine. Uses Google to search for Wikipedia articles, You Tube videos, etc.

13. How much classroom time is used working with computers?

1/3 of the time for career counseling. Don’t use for sex ed as much, maybe 10%. Asks them to research on their own but they don’t do it.

14. What percentage of your students has access to a computer at home?

90%

15. What computer resources does your school provide?

Media center with Mac minis & windows machines, and there’s a laptop cart on each floor teachers can sign out. Kids can use their own laptops, about a third do bring laptops to school.
Appendix III: Individual personas and scenarios
Derrick is a 26 year old Teach for America corps member who currently works as a high school mathematics teacher at the Sam Houston High School in Houston, TX. He is engaged and loves to spend a lot quality time with his fiancé as well as play soccer with friends on Saturday mornings. Because of his great passion for soccer, he is the coach for the junior varsity team. Since he first started coaching the team two years ago he has led the team to a state championship title.

Derrick attended the University of Texas (UT) and graduated with both a Bachelor of Science in Mathematics and Master of Education in Math Education. Throughout his education at UT he was an active leader on campus. As such he was a resident assistant, captain for the varsity soccer team and treasurer for the student government organization. Derrick is very comfortable with technology as he makes use of a smartboard, projector and MobiView to teach his students. In addition he uses a MacBook pro laptop, Blackberry phone and iPad for personal use.

In the near future Derrick looks forward to pursuing a doctorate degree to enable him become a fulltime mathematics professor.
Scenario

Every Sunday Derrick writes all his lesson plans for the week. For every lesson plan he researches for activities, worksheets and powerpoints for the prospective topic. He starts his first lesson plan on linear equations for his ninth grade class. Last week, during a professional development training, one of his fellow corps members recommended he use the Internet Public Library (IPL) website to search for his class material. Instead of routinely searching on Google he first navigation to www.ipl2.org. Derrick’s immediate response to the site is positive and welcoming given the ease of use and well-designed search engine. He feels he will get immediate results and will rarely have to wade through tons of web data and textbooks for new resources. Once on the homepage he clicks on the “For Teens” button and then clicks on “School & Homework Help”. He notices that there is no High School link at the left hand side title bar. Hence he goes back to the homepage and tries to search for math material through “Resources by Subject”. He navigates to K-12 education under the Education tab. He is very disappointed that all the resources listed has no math or any other subject resources but rather focuses on school curriculums and policies. Frustrated at this point, he last decides to use the search box at the top of the page. He types in the keywords- tenth grade linear equations and selects to restrict the search to Teens only. IPL returns only two search results which are not as accurate as it would be with Google search results. Both results only used “equation” as the keyword to locate resources. Derrick is unsuccessful in finding resources for his lesson plan on linear equations. Out of curiosity he clicks on the “Kids” tab. He surprisingly notices a “Math & Science” tab and navigates to “Math” from the left hand title bar. He skims through the list of great elementary math resources and wonders why there is not a similar subsection in the “For Teens” and “Resources by Subject” tabs.

Academic Honesty Statement

I certify that:

- This paper/project/exam is entirely my own work.
- I have not quoted the words of any other person from a printed source, online source, or a website without indicating what has been quoted and providing an appropriate citation.
- I have not submitted this paper/project to satisfy the requirements of any other course.

Signature: Akua Bonsu
Date: 3/7/2012
Cynthia Green Persona & Scenario

Persona:
Name: Cynthia Green
Age: 30
Occupation: K-6 Educator
Location: San Francisco, CA
Family: Newlywed
Level of comfort with tech: Very Comfortable

Goals:
• To provide students with appropriate learning activities and experiences designed to help them fulfill their intellectual, emotional and social growth.
• To help students develop skills to function successfully during the remainder of their education.
• Encourage students to assume increased responsibility and independence for their learning.

Cynthia Green currently works as a fifth grade teacher at KIPP, a charter elementary school located in downtown San Francisco. Although she is teaching fifth grade this year, she has experience with teaching all elementary school grade levels and even combined grades in the classroom. She is in her third year teaching at KIPP. Before she worked at another charter school in East Palo Alto and before that she worked in the classroom next to her mother at an elementary school in San Diego.

Cynthia graduated from San Diego State five years ago and was lucky to find employment immediately after graduation. She always makes an effort to attend workshops and educator conferences during the summer to meet fellow teachers, discover the latest technologies that aid in the classroom and learn about different teaching methods & lesson plans that may help her met her professional goals as an educator. Because Cynthia is so active in the teaching community, she feels confident in her abilities to provide great education to K-6ers. She has also established meaningful and dependable relationships with other educators. Cynthia is very confident with working with computers and conducting self guided research by virtue of her own education.

In the classroom, Cynthia is encouraging her fifth graders to reach out to conduct self-guided research. In class they go over the best sources for research, which may include a trip to their elementary school library and how to conduct sound research on the internet. She believes it is important to teach students, even at such a young age, how to navigate the internet and recognize valid sources of information. Furthermore, she knows
that 90% of her kids have access to the internet at home and therefore doesn’t feel it is too early to ingrain in her students best practices of research.

When Cynthia isn’t working, she is spending time with her new husband exploring what the Bay Area has to offer. They moved to San Francisco so he could pursue a JD at one of San Francisco’s best law schools. Since both of them have fell in love with the hilly city, they hope to remain in the area for quite some time. Currently, their immediate family consists of their two cats; however, they hope to expand said family in the near future to human children.

**Scenario:**

For one of their first assignments, the fifth graders Cynthia teaches must do research on an animal of their choosing. The students must collect information about their habitats, their prey and predators, the various names the animal is called, life expectancy, etc. This assignment is usually dolt out in the beginning of the year in order to show her kids how to go about searching for information on the internet.

At a conference over the summer, she ran into an acquaintance that lives in the Philadelphia area who told her about a public library Drexel University was sponsoring, called the internet public library, or the ipl2. The website provides reliable and age appropriate resources for K-12 students. Because Cynthia and her students have run across inaccurate information in the past, she decides this could be an excellent resource for internet research.

During her first visit, she is pleased to notice the ipl2 is very similar to other search engines on the internet due to the search bar; furthermore, just by virtue of its presence she knows it will be simple enough for her fifth graders to use. She also notices five buttons indicating different path for finding information: resources by subject, newspapers & magazines, special collections, for kids and for teens. She clicks on the “for kids” button where she is brought to a landing page that offers a search bar and other buttons that separate subject topics. She also notices there is a button for parents and educators, which she becomes excited about.

She notices that a hyperlink for animals in located right underneath the subject heading “math & science”. She is brought to a page, which lists 170 resources for the subject. She also notices the ipl2 further categorizes animals on the left hand side. Within a few seconds of being on this page she finds two resources that will immensely aid her students in retrieving needed information. Because she knows that most fifth graders have short attention spans, she tries to find the same information by typing key terms in the search bar. Fortunately, key terms such as “animals” or “animal groups” yield similar or the same results. She exists the browser feeling very pleased that she can add such a valuable resource to her suggested list of websites.
Maureen Brown

**Age:** 35

**Gender:** Female

**Location:** Philadelphia, PA

**Occupation:** Technology Teacher

**Education:** BS Elementary & Early Childhood Education/MS Technology in Education

**Devices:** Mac Book, Smart Board, Laptop, Notebook

Smart-Board
Background Information:

Maureen Brown is a 35 year old Technology Teacher at Gilbert Spruance Elementary and Middle School in northeast Philadelphia, Pennsylvania. The school has a yearly enrollment of about 1500 hundred students, the largest Elementary and Middle school enrollment in the school district of Philadelphia. She lives in a single family home with her husband and two kids. She cherishes her twelve year old son Jason and adores her eight year old daughter Elizabeth. Maureen and her husband commute to work approximately 35 minutes Monday through Friday and return home about 5:00PM. Their annual household income is $225,000. Maureen has a desktop and a laptop at home that she used to enter students’ grades, help her kids with their assignments, retrieve and gather instructional materials for her students. Maureen used the internet, google, Philadelphia School district website, technological devices and software provided by the school district for instructional purpose.

Maureen and the kids participate in dance and soccer as a means of helping the kids maintain a healthy body weight. Maureen son is also a part of the local community swim team. At home, Maureen supervises her kids on the computer to ensure their assignments are done with quality and accuracy. She also enjoys playing soccer games with her daughter and watch Disney cable channel with her son. Maureen loves learning and teaching current materials. She spent a lot of time on the internet researching new technologies and teaching materials to ensure her students are on path with age appropriate modern technology.

Goals:

- Gather current materials for research and curriculum development purposes.
- Ensure students fully understand materials taught
- Meet classes periodic intervals without delays
- Develop strategy to ensure students with academic challenges understand the basics of materials taught.
**Scenario**

On a Saturday afternoon Maureen picked up her son from swimming practice session and drove home quickly to watch the Lakers game. While watching the game her son Jason told her about a past due assignment the teacher reminded him to complete on the weekend and submit it on Monday morning. The teacher instructed each student to research one tragic event that occurred in the United States. The teacher gave them instructions about specific information she wanted them to include in their home work. Jason was instructed to research the Pearl Harbor bombing on the United States on December 7, 1941. Jason needed to include in her research the time of the attack, reason behind the attack, number of people killed and the United States response to the attack. The teacher provided appropriate internet resources with the ipl2 listed number two on the list. Maureen took Jason down the basement to their mini home theater to enable her supervise him without any distraction. Maureen connected her laptop to the home theater and supervised her son in the search for information on google. They gathered some information but needed more information to complete the assignment. Maureen then told Jason to type “ipl2” in the google URL bar to see if they could find the remaining information on the ipl2.

While navigating the ipl2 home page, Maureen easily capture the research by subject icon due to its user friendly image that helped her figure out easily the right link to click with certainty. The used of books as images on the research by subject icon enhances Maureen’s ability to select the icon with certainty. Jason clicked the link and a new page opened displaying many links on the right including the historical documents and sources. Jason immediately recognized the historical document category and clicked on it. A new a page containing many links with the information needed to complete the assignment opened. Jason printed the needed information and completed his assignment. After completing his assignment, Jason told his mother that the ipl2 was easy for him to navigate due to the use of friendly icons on the home page, and the use of different colors of font enable him capture links quickly. He wish that icons with friendly images remain attach to links on every page to make navigation easier for users of younger age and poor reading skills. Maureen was happy that her son completed his assignment and told him she will begin recommending the sight to teachers and students for research and instructional purposes. Maureen concluded that the ipl2 appears to be a site that is not difficult to navigate and contain relevant information for teachers and grade school students.
Persona

1. Name: William Fitzroy
2. Location: Philadelphia, PA
3. Age: 41
4. Profession: Clinical Social Worker at a special needs high school
5. Family: Partnered
7. Level of comfort with technology: sophisticated consumer of technology

Goals

1. William wants to find age-appropriate materials to teach sexual education to high school students.
2. William wants his students to do research outside of class.
Profile

William is a licensed social worker. He works in a small private school for special needs children. He teaches classes on sex education and career counseling in addition to providing individual counseling to students. The school also hosts five graduate student interns from Bryn Mawr’s school of social work.

William owns a house in Mt. Airy where he lives with his partner, Keith. He has a dog named Kobi. He enjoys hiking in the nearby Wissahickon Park with Kobi. He and his friends often get together for dinner parties at each other’s homes. He loves outdoor activities and during the summer takes his students on wilderness retreats all over the country. He likes to go skiing in the winter and to the beach in the summer. He often visits his mother in New York City and his sister in Vermont.

William considers himself to be “a sophisticated consumer of technology.” He has an iPhone, an iMac at home, and a Mac laptop at work.

William feels that he is “resourceful guy” and that he can usually find what he’s looking for on his own by starting with Google and Wikipedia. If those are unsuccessful, he will use the EBSCO database and news websites that he trusts like nytimes.com and npr.org. He will also ask other teachers or go the Mt. Airy branch of the Philadelphia Free Library. His sister is an elementary school librarian, and he will consult her about his work-related research needs. He has never used an online library.

Scenario

William goes to the IPL2 to look for age-appropriate resources for his sexual education classes. The first thing he does is search for “sexual education.” This brings up 500 results. They results are not classified, nor is the ranking method made apparent, so
he’s not sure if he’s getting the most appropriate material or if he’s seeing everything that’s relevant. He recognizes a few sites that he’s already used for classes, so that inspires some confidence.

William goes back to the homepage and clicks on the Special Collections box, hoping to find something germane there. The categories listed there did not seem promising, so he went back to the homepage. He clicked on the box that says “For Kids.” Then he went to the health section, and then to the body subsection. There he found The Hormone Factory, described as a “site is for pre-teenagers who have questions about puberty and sex.” William decides this is a good resource, but nothing else seems useful.

William goes back to the homepage and clicks on Newspapers and Magazines. The newspapers are arranged geographically, so that is no help to him. He clicks on magazines, then on sexuality. He notices that when he does that, the webpage header changes the green “Newspapers and Magazines” to the red “Resources by Subject.” The left hand navigation has a link for contraception. When he clicks it, it takes him to a list with no entries, leaving him to wonder why it was there. He clicks the browser’s back button to return to the list, which does have a few resources that he notes for possible use in his class.

William returns to the homepage and then clicks on Resources by Subject. He clicks on Health & Medical Sciences. He clicks on the sexuality link in the left-hand navigation. It looks very much like the list he found under Newspapers and Magazines, except this list has 104 resources while the other list had 71. The breadcrumbs at the top of the page seem to say the same thing on both pages. There is also a contraception link
here. He clicks it to discover that it has 6 entries, while the other contraception list was empty.

While William found the site inconsistent and confusing, it did help him find some useful resources. He doubts that he would recommend it as a resource to his special needs students.
Marsha Meadows
Age: 58
Gender: Female
Location: West Chester, PA
Occupation: Elementary School Librarian
Education: MS Library & Information Science
Devices: Mac Book, Smart-Notebook, Smart-Board

Background Information:

Marsha Meadows is the Librarian at Fern Hill Elementary School in West Chester, Pennsylvania. She works very long days in the classroom, often leading clubs or mentoring students individually afterschool. She spends a great deal of her time at home creating lesson plans and reading new books to keep up with her field.

Marsha needs to access information and perform research for herself and others on a very regular basis. In the classroom she directs her students to the library’s web based database, World Book Online and other subscription based services provided by her school district. When she is searching for resources for her classroom she often starts by accessing World Book to determine keywords on the subject and then conducts searches using Google for reputable material on the subject. Most of the materials that she deems reputable come from government, university, research, nonprofit, and museum websites.

Marsha keeps herself informed about innovations in the Library and Information science by reviewing both academic and professionals resources on the topic. When new methods, technology and resources come into the field, Marsha is often an early adopter.

In her lessons Marsha emphasizes the use of strong key words that get to the root of the topic and therefore produce the most relevant and helpful materials.

Goals:

Find resources for herself, students and teachers that support lesson plans and independent research.

Be able to quickly assess the academic validity and age appropriateness of a resource.

Access professional resources that allow her learn new methods of information gathering.
Scenario – Finding Information About the Romans for 4th Graders

It’s March 2012, shortly before Spring break and elementary school librarian, Marsha Meadows, will soon be working with the 4th grade teachers to develop their lessons on Roman Civilization. Marsha is often concerned that the materials used in the classroom aren’t age appropriate in terms of reading level for her students so she takes great care to find elementary level resources that will both enrich and engage the students.

Marsha was referred by one of her colleagues to a website called the Internet Public Library 2, at www.ipl.org, which provides reliable resources for grades K-12. Since reliability of information is one of Marsha’s main concerns she decides to visit the resource to look for age appropriate materials regarding Roman Civilization.

After typing in the URL, Marsha is presented with a main search feature and a number of other methods by which she can access information. Since Marsha does most initial resource gathering through Google, Marsha opts to type Roman Civilization into the search bar as her first means of extracting information.

The first five results turn up external links for pages about Roman numerals. As she scrolls down the page, past these irrelevant results, the fifth result titled The Romans seems to be the general resource she is looking for. Upon further inspection of the short description below the title, Marsha learns that this is an “Interactive site designed for primary grades”. She can also see from the URL listing below the short description that the resource is from www.bbc.co.uk, a site that she not only trusts but one she will feel comfortable directing her students and colleagues to.

When she links to the site she finds a very informative and interactive platform for elementary aged students to learn about Roman civilization.

Marsha leaves ipl2 very pleased with her first interaction because she was able to find a credible classroom resource with her first query.
Appendix IV: Individual heuristic evaluations
### Heuristic Evaluation

<table>
<thead>
<tr>
<th>Description of Problem</th>
<th>Heuristic number(s)</th>
<th>Severity (circle 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marsha was able to quickly adapt to the menus located on the homepage of the <a href="http://www.ipl2.org">www.ipl2.org</a> site</td>
<td>4, 6</td>
<td>0 no problem</td>
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<td></td>
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<td>1 cosmetic</td>
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<td>4 catastrophe</td>
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<tr>
<td>Marsha likes the ipl's search box at the top which is similar to Google's search bar. The searches/links open up in a new tab.</td>
<td>4, 2, 5</td>
<td>0 no problem</td>
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<td>1 cosmetic</td>
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<td>4 catastrophe</td>
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<tr>
<td>Marsha incorrectly typed Romen as Roman in the search box. IPL failed to recognize an error in the spelling and does not offer an alternative like “Did you mean Roman Civilization?” Hence no search results were displaced.</td>
<td>6, 9</td>
<td>0 no problem</td>
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<td>1 cosmetic</td>
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<td>3 major</td>
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<td></td>
<td></td>
<td>4 catastrophe</td>
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<tr>
<td>Whenever Marsha navigates to a subsection in “For Kids” section there is no link like a back button on the current page to navigate back to the homepage. She realizes that if her students get off track or click the wrong links, it may be difficult for them to find their way back to the main page.</td>
<td>5, 9</td>
<td>0 no problem</td>
</tr>
<tr>
<td></td>
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<td>1 cosmetic</td>
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<td>4 catastrophe</td>
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<tr>
<td>The search results returned for Roman civilization have valuable information for her students but Marsha thinks with the amount of text with the lack of graphics/pictures will deter them from clicking those links.</td>
<td>8</td>
<td>0 no problem</td>
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<td></td>
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<td>4 catastrophe</td>
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<tr>
<td>As Marsha continues researching for various topics there is no way to save her search information. If there was the option to set up a profile, Marsha could login anytime and easily continue from where she left off.</td>
<td>2, 3, 7</td>
<td>0 no problem</td>
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<td>1 cosmetic</td>
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<td>4 catastrophe</td>
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</table>
### Description of Problem

<table>
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<tr>
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<th>Severity</th>
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<tbody>
<tr>
<td>Very deep menu structure that is inconsistent on each page. There are a multitude of distinctly different page layouts. Almost every page is somewhat different from the next. If drilling down through the pages to find nutrition information for teens, a user hits 3 distinctly different page layouts after viewing only four pages. The breadcrumb navigation provides minimal assistance especially since it is only on the sub-sub-pages. The lack of well defined main navigation on every page makes getting around difficult.</td>
<td>1, 4, 6, 7</td>
<td>4 catastrophe</td>
</tr>
<tr>
<td>The website’s main banner changes with every section and doesn’t always link to the home page. Often the page it links back to is a page that is totally unrelated to what the user was browsing.</td>
<td>1, 3, 4, 6</td>
<td>3 major</td>
</tr>
<tr>
<td>Search results and category lists do not provide rankings or different view options. No indication of what makes the top result the top result. Is based on keywords, meta data added by ipl2, user clicks? Something like most used/visited would be helpful.</td>
<td>1, 7</td>
<td>2 minor</td>
</tr>
<tr>
<td>Search help menu written in unclear language <strong>proximity searches, Boolean operators and syntax</strong> are not necessarily words in the vocabulary of the K – 12 audience. Lack of GUI advanced search option.</td>
<td>2, 10</td>
<td>3 major</td>
</tr>
<tr>
<td>Search function does not accommodate spelling errors, Tries ten words that were misspelled by only one letter, each search produced the same generic error message without suggestions of what I might have meant also an issue for some school aged children. Since the search function is the only common element on all pages (with the exception of the cluttered footer) it’s important that its results/function be of the highest quality.</td>
<td>5, 9</td>
<td>3 major</td>
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<tr>
<td>No way to search newspapers by article subject. Since a student might be looking the most current articles on health and career issues (according to the persona) there’s no way to find relevant articles short of going to every newspaper website from every state and using the newspaper’s search option (assuming the newspaper has one)</td>
<td>2, 3, 7</td>
<td>3 major</td>
</tr>
<tr>
<td>When searching a specific term there’s no way to easily tell what kind of results have been produced. Is the result a magazine website? A newspaper? A government site? etc If a student is searching information about becoming a doctor or teacher there’s no way to filter out what’s career development information and what’s general subject info.</td>
<td>7</td>
<td>2 minor</td>
</tr>
<tr>
<td>In relation to the William persona, if a teenager attempts to use the site to learn about health and sexuality if the link to the For teens and then to the Frequently Asked Embarrassing Questions section the user comes to a list of questions but no actually answers. The website reference links should go to a page on the site that actually answers the question.</td>
<td>2</td>
<td>2 minor</td>
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</table>
### Heuristic Evaluation Worksheet

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<tr>
<th>Description of Problem</th>
<th>Heuristic number(s) (see above)</th>
<th>Severity* (circle 1)</th>
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</thead>
<tbody>
<tr>
<td>Broken links and outdated websites are a major problem with IPL2. It affects its credibility as being a good reference source.</td>
<td>4, 5</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe</td>
</tr>
<tr>
<td>There is no mechanism that corrects or suggests alternative spellings when using the search bar. Almost all other search engines have such a feature. Moreover, if this site is truly designed for K-12 children, the IPL should make an effort to fix this error. This can lead to a frustrating experience for kids and consequently discourage them from using the website.</td>
<td>5, 7, 9</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe</td>
</tr>
<tr>
<td>The IPL2 lacks an obvious home button. Quick methods of returning to the home page is by clicking on the ipl2 logo. If one wants to go back to the subjects page, one must click the banner at the top. However, for inexperienced internet users, such as children, it is not obvious how to go back.</td>
<td>3, 7, 8, 9</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 <strong>catastrophe</strong></td>
</tr>
<tr>
<td>There is lack of consistency with page layout when using the search bar vs. using subjects to sift through information. When using the search bar there is no menu on the left hand side. When using subject searches, there is both a menu and a breadcrumbs menu. Also, when using subjects to search the page table &amp; content jumps to the right.</td>
<td>4, 6, 7, 9</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 <strong>catastrophe</strong></td>
</tr>
<tr>
<td>When I click on a link, the webpage opens in a new tab, which I think is helpful for users not to lose the ipl2 page they currently are on. However, when I go back to my list and click on another link, a new tab doesn’t open but the first tab changes. So instead of having three tabs, there are only two. When someone is conducting research, it is useful to have multiple tabs open. When one tab is changing, it’s easy to lose track of information and resources.</td>
<td>7, 9</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 <strong>catastrophe</strong></td>
</tr>
<tr>
<td>When searching for a term, there is a lack of hierarchy within the results. Using Derrick’s scenario as a guide, when searching for “linear equations”, the second search result was “International Linear Collider”. A more appropriate search result, “SOS Mathematics”, was on the second page results. I am going to assume a person who is searching for “linear equation” on a site designed for students is looking for math or algebra guides, not high–energy collisions between electrons and positrons.</td>
<td>1, 2</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 <strong>catastrophe</strong></td>
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<tr>
<td>Description of Problem</td>
<td>Heuristic number(s) (see above)</td>
<td>Severity* (circle 1)</td>
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<td>There is no top-level navigation. Users expect to be able to navigate throughout a site without having to return to the homepage each time.</td>
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<td>4 catastrophe</td>
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<tr>
<td>Search results do not show the categories where results are classified. This information would provide a good way for users to find other relevant resources using the site’s subject navigation.</td>
<td>2, 6</td>
<td>0 no problem</td>
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<td>4 catastrophe</td>
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<td>There is no help function. This could provide users with guidance about how to use the site.</td>
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<td>0 no problem</td>
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<td>1 cosmetic</td>
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<td>4 catastrophe</td>
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<tr>
<td>There is no place where all of the second-level subject categories can be seen at the same time. This could help the user discover appropriate resources.</td>
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<td>0 no problem</td>
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<td>4 catastrophe</td>
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<td>The site map link is hard to find as it is buried at the bottom of the page among many other links in small font. While it does not show the second-level subject categories, it does a better job than the homepage of giving the user a better idea of the resources available.</td>
<td>6, 7, 8</td>
<td>0 no problem</td>
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<td>4 catastrophe</td>
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<td>The site map is inconsistent regarding the level of depth it details. For instance, it lists each individual special exhibit on the site but not the second-level subject categories.</td>
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<td>0 no problem</td>
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<td>4 catastrophe</td>
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<tr>
<td>When in a third-level subject category, the second-level categories are not shown and vice-versa. This forces the user to go back and forth between pages to navigate within one category.</td>
<td>4, 6, 7, 8</td>
<td>0 no problem</td>
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<td>1 cosmetic</td>
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<td>3 major</td>
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<td>4 catastrophe</td>
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<tr>
<td>The breadcrumb links are small. This would not be as much of an issue if the rest of the site had better navigation.</td>
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<td>0 no problem</td>
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<td>1 cosmetic</td>
<td>2 minor</td>
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</tbody>
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Cynthia Green Persona via Chrystelle Browman

Heuristic Evaluation Worksheet

<table>
<thead>
<tr>
<th>Description of Problem</th>
<th>Heuristic number(s)</th>
<th>Severity* (circle 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cynthia was able to easily bring up the ipl2 site as the keyword was properly indexed into the search engine. There is no complexity in the website address or unusual names that could be easily misspelled. Cynthia was able to get to the site on the first try. The sites icons and home page layout gave Cynthia the impression that she was on the right site and that it should provide reliable and age appropriate resources for K-12 students.</td>
<td>7</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe</td>
</tr>
<tr>
<td>Cynthia for the first time on the site immediately figure out that the “For Kids” button would be the right link to lead her to the page that contains the information she needed for kids. The label “For kids” was easily noticed because it appeals to her search for information for kids. The orange color of most of the fonts in conjunction with an orange background in the “For Kids” segment enhances users' ability to capture materials quickly. In addition, the positioning of icon in the middle of the page makes it easier for users to find the right icon to click, as oppose to an icon positioned at the bottom of a page or somewhere difficult to find.</td>
<td>1,8</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe</td>
</tr>
<tr>
<td>While the main pages use friendly icons that assist users and those with poor reading skills easily navigate the page, the icons are no longer display while searches are done. Perhaps attaching images to links as a reference to the home link while searches are done on every page could help students of a younger age and poor reading skills better. Cynthia also noticed the ipl2 search engine doesn't suggest or correct words misspelled by users, which is unconventional users. Cynthia is concern about top level navigation because many grade school kids do not pay attention to spelling words correctly when they are writing. Many kids have shorter attention spans and could get frustrated trying to figure out the right spelling for the key word they want to type in the search bar.</td>
<td>4, 2</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe</td>
</tr>
<tr>
<td>Cynthia is comfortable with using the ipl2 browser but does not think all of her fifth graders can browse through the ipl2 without getting confuse as to where to locate the back and forward button given the separation of the buttons from the main page. She feels the position of the button appeals to only knowledgeable users on the internet. She’s concern that younger kids who do not understand the concept of the back button or possess the knowledge yet could have difficulty returning to previous page. She thinks that having the back and forward button on the page itself with a label back and next could be figured out by any user.</td>
<td>2,3,9</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe</td>
</tr>
<tr>
<td>While is it is true that ipl2 could be relevant to grade school teachers and K-12 kids, Cynthia noticed many of the sites the kids work on during class time has print options on the pages allowing them to print their work or images without calling on the teacher every minute to print materials for them. Some kids can not figure out how to print from the</td>
<td>6, 10</td>
<td>0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe</td>
</tr>
</tbody>
</table>
site.Ipl2 appears to assume that all interface browsers will have its own print option; which is not always the case. Given the variation in browsers settings from user to user. Putting in the ability to print certain materials will allow users of any age and skills to service themselves without accommodation.

| Cynthia while navigating the ipl2 to an external resource click on the link under 'computer literacy.' A new window opens to a .com site resource displaying lot of text but no indication or prompt that she's on another site. Cynthia is surprise because most of the sites her school district recommends for instructional purposes prompts users before linking them to the another site. Her School district designed their sites like that to avoid kids getting distracted from doing their work and ensure they remain on prescribed web sites while in school. For Cynthia, the lack of navigation feature to prompt users does not coincide with the measure of the school district to keep kids focus while doing their research on a prescribed age appropriate web site during school hours. Clicking “For Kids” should result in consistent age appropriate materials which links can be provided when the need for more in depth material is needed. | 4, 9 | 0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe |
| Cynthia in looking for additional information for instructional purpose took a little longer than usual to find the information. She took longer because she expected to find the information quickly since it was a common data often requested by grade school teachers. Perhaps developing specific sections where common data often requested by grade school teachers will ensure data consistency and certainty. Like the weather information on yahoo site for users’ every day in section easily found. | 2, 4 | 0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe |
| Cynthia also realizes that ipl2 does have a log in system. With the playfulness of kids and the difficulty in getting most kids to complete a 45 minutes task, a coded or login system could help kids save their work session and save time for future tasks. That is, giving users the ability to save work or browsing session and avoid the need to write down several links or start over each time. Having the ability or option to setup a quick profile say a unique code to preserve your session of what you clicked on or viewed would allow Cynthia and her fifth graders to easily go back and continue from where they exited. | 2, 3, 7 | 0 no problem 1 cosmetic 2 minor 3 major 4 catastrophe |
Appendix V: Individual academic honesty statements

Academic Honesty Statement

I, Akua Bonsu, certify that:

- This paper/project/exam is entirely my own work.
- I have not quoted the words of any other person from a printed source, online source, or a website without indicating what has been quoted and providing an appropriate citation.
- I have not submitted this paper / project to satisfy the requirements of any other course.

Signature /s/ Akua Bonsu

Date March 18, 2012
Academic Honesty Statement

I, Chrystelle Browman, certify that:

- This paper/project/exam is entirely my own work.
- I have not quoted the words of any other person from a printed source, online source, or a website without indicating what has been quoted and providing an appropriate citation.
- I have not submitted this paper / project to satisfy the requirements of any other course.

Signature /s/ Chrystelle Browman

Date March 18, 2012
Academic Honesty Statement

I, Vincent Browne, certify that:

- This paper/project/exam is entirely my own work.
- I have not quoted the words of any other person from a printed source, online source, or a website without indicating what has been quoted and providing an appropriate citation.
- I have not submitted this paper / project to satisfy the requirements of any other course.

Signature /s/ Vincent Browne

Date March 18, 2012
Academic Honesty Statement

I, Joseph Keslar, certify that:

- This paper/project/exam is entirely my own work.
- I have not quoted the words of any other person from a printed source, online source, or a website without indicating what has been quoted and providing an appropriate citation.
- I have not submitted this paper / project to satisfy the requirements of any other course.

Signature /s/ Joseph Keslar

Date March 18, 2012
Academic Honesty Statement

I, Anna Stokes, certify that:

- This paper/project/exam is entirely my own work.
- I have not quoted the words of any other person from a printed source, online source, or a website without indicating what has been quoted and providing an appropriate citation.
- I have not submitted this paper / project to satisfy the requirements of any other course.

Signature /s/ Anna Stokes

Date March 18, 2012