

COGNITIVE WALKTHROUGH REPORT

The International Children's Digital Library

Jessica Espejel

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Executive Summary

The **International Children's Digital Library (ICDL)** is a non-profit corporation that holds 4,642 digital copies of children's books from around the world in 61 languages. It is a vital source for families to access books free of charge online. Most users visiting the website are families in many parts of the world that are looking for foreign language books, predominately in their mother tongue, that otherwise would be very difficult to find locally in their area.

By conducting a cognitive walkthrough evaluation and analysis, this report details our findings and recommendations to enhance usability of the **ICDL** website, particularly the main catalog webpage. Based on the review process of the walkthrough evaluation, our suggestions include adjusting three minor but relevant problems encountered during the review.

These recommendations are:

1. Use appropriate language for better clarification of action on homepage.
2. Re-organize interface layout by localizing the search features in one location of better navigation of main catalog page.
3. Increase text size for better visibility of significant labels and texts.

With these recommendations, the **ICDL** will foster a higher quality of navigation, search features, consistency in functions, and visual ease of use for its users of all ages and technology backgrounds.

Introduction

This report details our findings and recommendations to enhance usability of the **International Children's Digital Library (ICDL)** website, particularly the main catalog webpage, through the completion of a Cognitive Walkthrough evaluation.

The **ICDL** is a non-profit corporation that continues to build a digital library of children's books from around the world and remains to be a vital source for families to access books free of charge online. Initially created by a research team at the **University of Maryland** in cooperation with the **Internet Archive**, the digital library has grown to house 4,642 books in 61 languages and the website boasts having users come from 228 different countries, both adult and children users.

The website also mentions having research members from a special team called the **College Park Kidsteam**, a group of six children between the ages of 7-11, who work regularly with the adults in the **University of Maryland's Human-Computer Interaction Lab**. "The approach used is called cooperative inquiry, a unique partnership between children and adults to develop and evaluate computer interface technologies that support searching, browsing, reading, and sharing books in electronic form" (International Children's Digital Library).

Even with the ICDL's own research methods, our Cognitive Walkthrough evaluation has provided particular insights on areas of the website that would improve successfully searching for a book in the collection's catalog. The evaluation starts with a specific task for evaluators to complete through certain action sequences that should ultimately lead to the desired goal. Evaluators were then asked to note any problems during the task based on a cognitive walkthrough questionnaire.

Methodology

The evaluation consisted of the Cognitive Walkthrough process in which a group of evaluators reviewed the interface of a website with a given brief description of the target user and were directed to take certain action sequences that would eventually lead to a desired task to complete.

The group consisted of a group leader that acted as both recorder and facilitator and two peer evaluators with previous knowledge of the cognitive walkthrough process. The group leader facilitated the review process with two different types of documents: a document that defined the inputs of the evaluation and a document called the walkthrough notes that detailed 4 questions as mentioned in a technical report by Wharton, Rieman, Lewis, and Polson (1994).

During the evaluation, evaluators observed the group leader in following the input action sequences on a Mac computer, first following all five sequences consecutively without interruption and then evaluating the action steps individually as well as answering the 4 questions (Fig. 1 on pg. 5) with detailed description as to why the action succeeded or requires improvement. Upon completion of the evaluation, the group leader and the evaluators further analyzed the results as a group and eventually categorized each action sequence as a “Success” or “Needs Improvement”. The inputs are presented in further detail on the next page.

Cognitive Walkthrough Inputs

Users

First-time visitors to the ICDL; parents searching for fiction books in a foreign language; possibly bilingual or multilingual users.

Task

Find a folk tale in French for a 4 year-old child.

Correct Action Sequence

1. Click “Read Books”
2. Click “Three to Five”
3. Click “Fairy tales and Folk tales”
4. Click “French”
5. Click “Philibert”

QUESTIONS ASKED IN THE WALKTHROUGH NOTES

Will the user try to achieve the right effect?

Will the user notice if the correct action is available?

Will the user associate the correct action with the effect trying to be achieved?

Fig. 1 Correct action is performed, will the user see that progress is being made toward solution of the task?

Findings & Recommendations

The evaluation prompted three minor design critiques that can be altered to improve functionality and ease of use for users navigating the digital collection. This three design critiques are *appropriate language*, *interface layout*, and *visibility*.

The following will discuss the analysis we discovered through the walkthrough and the recommendations we suggest for the web developers to ensure users are utilizing the catalog search features efficiently and aptly.

Appropriate Language: Re-Word Labels on Homepage

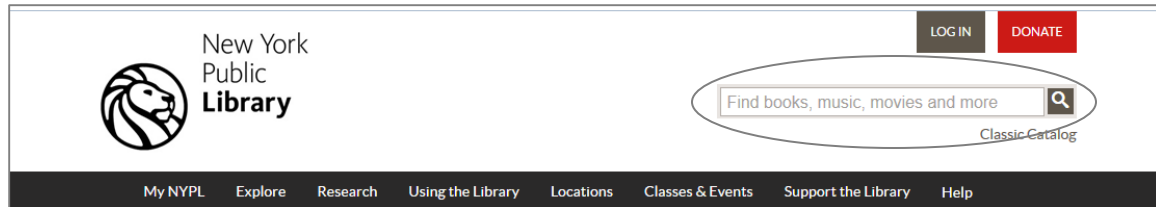


On the homepage, the two evaluators were hesitant to click on the "Read Books" icon and links believing that it did not correspond to the catalog but was a propaganda slogan for reading. An experienced user of the site and of other digital libraries may deem this label as a logical link to the book database but a novice user may not come to the same conclusion.

The only other possible actions a novice user could take to search the collection would be to follow the links in the gray box provided above in the screenshot. But this does not ensure that users will find the main search page with all the options of advance searching.

Recommendation

One option to optimize successful navigation to the catalog database is to consider rewording the labels to “Search our Collection” or “Find a Book”, which is more recognizable terminology to users in search of a book in the collection.



Two examples of digital libraries that use appropriate language on their site would be the Cornell University Library, labeling their link as “Search Library”, and the New York Public Library homepage, labeling their interior search bar as “Find a books, movies, music and more” (as seen in the figure above).

Interface Layout: Re-organize Icon Search Buttons

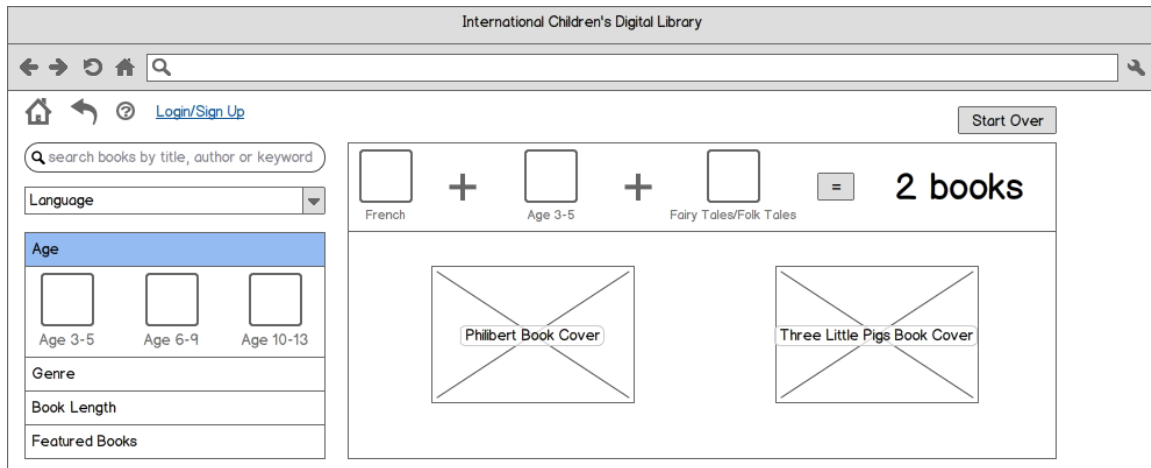


The next steps in the cognitive walkthrough required the evaluators to search for a book based on age, language and genre. As seen in the image above, the types of categories to search for a book are grouped together around the collection platform but they are not given any priority or direction on where to find it on the webpage if a user is just interested in one search feature. A user is likely to circle around from top of the page clockwise before they reach their desired goal.

During the walkthrough, the evaluators concluded that priority of icons should be placed linearly in one area of the interface instead of along the border. The evaluators also agreed that parents are more likely to search for a book by *language* first, then *age*, then *genre* or *book description*.

It is also important to note that the option to search by *language* is not available as an icon but as a drop down menu. Consistency is essential in allowing users to explore the website without apprehension or confusion. Understandably, making language icons for the 61 languages available would be unreasonable work for the developer and bewildering for the user. In the next section, we recommend alternatives to this issue and the layout of the interface.

Recommendation



As previously discussed, users are expending too much time searching for the desired search options and you should consider localizing the search features in one central area to minimize searching time and increase utilization of important options that were once hidden or difficult to find. Above is a mockup of the main interface with search features re-arranged to the left side in priority order by search topics and by search functions. As you can see, the layout provides a function hierarchy from search box, to drop down menu, to accordion menu with icons inside the labeled accordion tabs. This maximizes visibility of the search functions that are less visually appealing as the colorful icons but are just as beneficial to users in their book search. The mockup layout also enables a consistent visual platform for users by focusing on clearly labeled search features with the prospect of using all the search features or narrowing down on one desired search feature.

Visibility: Enlarge Icon Labels and Book Titles

This specific design problem is not of high priority and is only relevant to users with large computer monitors. The evaluation was conducted on a Mac desktop with a large monitor and the evaluators were concerned with the size of the text for both the search icon labels and the book titles under the book cover icons.

The group leader had previously inspected the website on a PC laptop and did not find the text size a concern until the walkthrough was conducted on the Mac desktop. Experienced users of Mac computers or own computers with large monitors may know to zoom into the web page for better visibility. But novice computer users that may not be using their personal computer, instead they may be at a local library or using a public computer, would not have this knowledge and would immediately have trouble identifying the icon labels and text.

Recommendation

Since font size varies tremendously across computers and devices, one solution to this situation is to increase text size throughout the whole website. If this requires too much effort, we at least recommend increasing the text size of the icon labels and book titles for users on the catalog for better visibility and to avoid users accidentally skipping any options or actions.

Conclusion

The International Children's Digital Library has made many efforts to build "a digital library of outstanding children's books from around the world [...] through innovative technology designed in close partnership with children for children" (International Children's Digital Library). Most users visiting the website are parents or children in many parts of the world that are looking for foreign language books, predominately in their mother tongue, that otherwise would be very difficult to find locally in their area.

This report proposes some adjustments to the current design of the main catalog webpage that will further enhance the users' experience and their success in finding the desired. By way of a cognitive walkthrough evaluation and analysis, minor but relevant difficulties to a given task of finding a book were brought to light and the adjustments recommended to the developers helps clarify in what way users' will take action, encourages easier navigation of the search features, and increases visibility of significant labels and texts for all users.

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Appendix

The analysis in detail of each step categorized as either “Success” or “Needs Improvement”.

Step 1: Click “Read Books” on Homepage

Needs Improvement

Evaluators were unsure of the center icon if it was a logo or a link to the catalog. They were not able to achieve the right effect to move forward because the phrase “Read Books” suggests it is a slogan and not a portal to the collection. Evaluators did notice the other links on the menu bar and side bar but were still hesitant of the terminology. We agreed that more appropriate language would be “Find a Book” or “Search our Collection” to be more direct that this is the link that helps users find a book.

Step 2: Click “Three to Five” Icon

Needs Improvement

Evaluators did not achieve the right effect because they spent too much time searching around the platform to find the “Three to Five” button. Time expended looking at all the icons before finding the correct icon was longer than necessary. The action was not as visibly clear, also, because of the small icon text.

Step 3: Click “Fairy Tales and Folk Tales” Icon

Needs Improvement

Similar scenario with step 2. Once again, evaluators had to search around the platform to find correct icon. Amount of time spent searching could deter parents from using the icons entirely.

Step 4: Click “French”

Needs Improvement

The issue this time was that the evaluators were consistently searching icons but in order to set the language preference, users will have to look for a drop down menu. At this point, evaluators also believed that language is the most important search feature for this site because it caters to users that are looking specifically for foreign language books. The evaluators determined that priority needed to be set for easier navigation of the search features and that layout would centralize and focus the users’ attention more aptly than the current interface layout.

Step 5: Click “Philibert” Book Icon

Needs Improvement

Overall, the evaluators felt this step was a success but the text size was too small to read. The group leader had noticed a change in text size from PC laptop to Mac desktop. Thus, concluded that this was a low priority design change but could be useful to consider for visibility on multiple devices.