Summary of Accessibility Testing of OverDrive (iOS version 3.7.8 and Android version 3.8.0)

Conducted by the National Network for Equitable Library Service (NNELS)

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About NNELS:

The National Network for Equitable Library Service (NNELS) is a digital public library of books for Canadians with print disabilities, and an advocate for an accessible and equitable reading ecosystem for their users. NNELS supports principles of openness, inclusion, and choice. NNELS is hosted by the BC Libraries Cooperative, a community service not-for-profit cooperative and a national leader in information and technology services.

Our team of Accessibility Testers has expert knowledge in the areas of accessibility testing, analysis, software development, and leadership. The team works to educate and advise publishers, technology vendors, and public libraries on best practices for accessibility. Our testers have lived experience with a range of print disabilities, including blindness, low vision, and learning disabilities.

Introduction

This is a short summary of the accessibility report for the OverDrive mobile apps in iOS and Android devices. It contains highlights of the most relevant findings. The full version of the report presents detailed information about the different sections of the app; including examples, detailed findings, and recommendations for fixing the barriers that our testers identified. Please refer to the full report for information on the testing of the OverDrive website on Windows, and Mac OS browsers, as well as the apps for Windows and Mac OS. Please note that while this summary report focuses on barriers and challenges, there were

several areas in which the app performed well; this information can be found in the full report.

The OverDrive platform provides access to various types of content including ebooks, audiobooks and emagazines. The type of content that a user can access is granted through their local public library. Please note that we only tested ebooks and audiobooks, and not emagazines, as these were only available to one of our testers through their public library.

The objective of testing was to assess the usability experience of readers with print disabilities, and determine to what extent they can access audiobooks and ebooks through their local public library effectively and efficiently. People with print disabilities use screen readers, refreshable Braille displays and other assistive technologies in their computers and devices to access information.

To ensure usability and accessibility of an application by people with print disabilities, all functions and controls must be accessible using assistive technologies. The DAISY Consortium explains that the basic assumption of accessibility evaluations is that reading systems "should support reading with eyes, ears, and fingers." (DAISY Consortium, 2017)

Testing approach

NNELS developed a list of criteria for testers to perform a structured review of the accessibility of mainstream library reading applications. We drew on the guidelines that the DAISY Consortium developed for the systematic assessment of the accessibility of hardware and software-based reading systems. This methodology allows us to determine the accessibility of the functions and features of each reading application from the user perspective.

All testers performed several tasks, corresponding to the different functions of the application, and answered questions systematically. The questions for all functions are grouped into various categories, including:

- Library access – Creating an account, login, searches, results, downloads
- Reading (listening to audiobooks, and reading ebooks) - app resuming reading at the same position, pausing before different sections
- Navigation – Moving through different elements in an ebook or an article such as headings, paragraphs, as well as spelling words; moving to different sections in an audiobook
- ebookmarks – Adding and navigating through ebookmarks
- Visual adjustments - adjusting colour contrast, font sizes and types

Summary of Accessibility Priorities

The most important priorities across iOS and Android are:

- Ensure that ebooks are automatically downloaded to the bookshelf when they are checked out.
- Improve readability of ebooks for VoiceOver (the iOS screen reader) users, in particular to ensure the position in the screen changes consistently when the user scrolls through the content with VoiceOver gestures.
- Fix the backfield interference issue (described below) to prevent confusion for VoiceOver users.
- Make sure that all controls are properly labeled, and place them in a fixed and standard place on the screen, to minimize the learning curve of this app.
- Fix the reading menu to make it more intuitive. Consider changing some menu items to give them their own higher-level access, such as putting them on the main menu.
- Add a "read-to-end" function, to allow TalkBack (the Android screen reader) users to read a whole ebook without the need to move in small increments such as paragraphs or pages.
- All hyperlinks or elements that can be clicked should be identifiable as clickable links to alert users that they display more information, and enable access.

iOS with VoiceOver

Searching

The testers using iOS with VoiceOver (Apple's built-in screen reader) noted that the basic search is very straight forward. They did not encounter any issues with entering queries. They did note that the different views in this section of the app can be problematic. By default, it is set to grid view, which is the most accessible view. If the user sets the view to list, it then becomes inaccessible since there are more elements to swipe through. Most often, lists are found to be accessible by screen readers across the board. Testers also discovered that when in list view there are unlabeled radio buttons.

A minor issue is the "Clear" control that deletes what the user has entered into the search box. Testers noted that it can be navigated to, but it found that it is unclear that it is a clickable item. This is because it only shows up as text, and the control type/role is not mentioned.

Borrowing, Browsing the Bookshelf, and Returning

Testers found it was confusing that ebooks had to be downloaded after being checked out. Even if they had automatic download turned on in their user settings, users have to search or add a title first in order to get to the list of ebooks they have on loan. Since the testers had adjusted the settings and turned automatic download on, they expected that the ebook would appear on their bookshelf after borrowing it, but this was not the case. Testers found that they still had to manually download/open the books.

Although testers found that it is easy to return an ebook from the bookshelf, they also found that the list of ebooks can be frustrating to interact with when trying to locate a specific title. The number of stars and ratings are read out for each title, and this has a

negative impact on user interaction. The testers noted they found this confusing as it was difficult to skip through all this additional information, specifically all the stars. This caused the overall navigation of this section to slow down for users relying on VoiceOver.

Reading/Navigation

Audiobooks

The audiobook playing screen is easy to navigate. Testers found that the biggest problem in this area is the "Close" button, which is used to navigate from the ebook information, or table of contents, back to the ebook player. This button is labelled "ebookmark," which does not give adequate information for its use. Testers discovered this through trial and error and were confused that it does not add an ebookmark, nor does it consistently close the Title menu. This was noted whether the user is looking at chapters or ebookmarks. When listening to audiobooks, testers found that there are other elements that have similarly ambiguous labels, such as the elements meant to show time remaining, or time elapsed. These elements only show as numbers with no context as to what they are. Again, it was only through trial and error that the testers figured out their use.

Testers found that they are not always able to get VoiceOver to interact with the elements on the audiobook player screen when there is a popover, such as Table of Contents. This means the user can still find the buttons, but they cannot be activated. These are controls outside of the focused area, such as Player Screen or Menu, that are read by VoiceOver, but cannot be activated, and are actually not directly related to the focus area.

Occasionally, VoiceOver will mistakenly read text and controls that are no longer visible. We refer to this phenomenon as backfield interference. It refers to this type of situations, as described above, when new controls are painted over existing ones without first clearing the screen of its old content, which is what VoiceOver continues reading. This leads to significant confusion for screen reader users, since they can get lost trying to find the correct, usable controls.

Ebooks

Testers found that ebooks can be read, but described the process of interacting with the interface challenging. For example, if a user wants to access the Table of Contents, they need to double-tap to reveal more options and then tap on the "Table of Contents" button. This process is not as straight forward as it seems. Unfortunately, there is no message to indicate that in order to see more options it is necessary to tap on the screen of text. Once there are more options on the screen it is possible to find a list of the sections, but when the tester clicked on them they did not activate anything. Because it is not clear that they need to double-tap on the "Table of Contents" button first to activate these sections, testers reported confusion and user frustration.

Testers also noted that the navigation slider is unlabeled. Voiceover just read it as "Slider" followed by the percentage. Despite this, the slider does work normally, and can be adjusted with the one finger slide gesture of up/down.

The main issue testers found when reading an ebook is the disconnect between VoiceOver's navigation and the actual ebook. When the tester scrolled through the ebook using the "read all" gesture, they were taken through the paragraphs of the ebook, but noted that the screen didn't change, meaning that the app does not follow the user's progress as they navigate through it.

Testers also found backfield interference in this section of the app, specifically with the Table of Contents. It is possible that a user will swipe out of the Table of Contents and VoiceOver will announce controls that don't exist. The button to open and close this section is labeled as "Title Menu."

Android with TalkBack

Searching

Testers using TalkBack (Android's built-in screen reader) noted that, on the search results page, the filter options are repeated twice; once as a collapsible item, and the other as a collapsible item with a link. These repeated options can cause confusion with some users.

There are two possible views for the search results: grid view, or list view. The default is set to grid view, which is accessible and navigable by TalkBack. The only issue noted by the testers is that there are blank spaces that TalkBack encounters while moving through the grid. This can reduce efficiency if the user swipes instead of exploring by touch. Testers discovered that list view also works, but the only issue is the radio buttons are labelled with verbose and complex phrases. For example, it says "you rated this title 4 stars" when the user comes across the radio button. In addition to being confusing, it can also take a blind user longer to move through the buttons than if they were labelled more concisely.

Borrowing, Browsing the Bookshelf, and Returning

Although testers found that the check-out process is accessible (with all the combo boxes and buttons properly labelled,) they did note two issues with sluggish responses and loss of focus for TalkBack, which caused frustration. The loss of focus was reported to occur after a tester clicked the "Borrow" button. If the user tried to click on other items, there would be no response until they were able to relocate the area again to dismiss the Successfully Borrowed message. This meant that the focus was outside the dialogue box for confirmation of the borrowed item, and all other sections of the page were inaccessible. It is important that the focus of a screen reader, like TalkBack, can keep focus in an area until the user chooses to leave through a series of clear actions and commands, and that there is a clear notification when something changes on the screen that requires the user to interact with it before moving to another section.

When in the bookshelf, the screen reader only reads the title and gives no other information, such as publisher information, page total, or when the loan expires. Testers also noted that there are unlabeled buttons below each title, and through trial and error they were able to figure out that these buttons are for "Return to Library," "Details," and "Share Options."

Reading/Navigation

Audiobooks

In the audio player screen where the "Play/Pause" button there are unlabeled numbers that indicate time elapsed and time remaining. Testers with Talkback also noted these controls only show numbers.

Ebooks

The menu to navigate the reader is not very easy to find. One tester reported that when the menu opens, the screen reader does not always read the menu to alert them that they are already in it. The items on the main menu were all labelled, but some items appear to be somewhat out of place. For instance, the information about the Loan, as well as the menu for ebookmarks, are both nested under the Table of Contents section.

The ebook viewer is accessible, although testers recorded their experience as not ideal. Simple navigation through the ebook works well with TalkBack, but regarding full-screen view for the ebook, clicking on the page number at the bottom of the screen to display controls works well, but is not intuitive at all.

Although testers were able to navigate by chapter and read the text, they could not find a "Read to End" or "Read Aloud" feature and had to manually scroll to continue reading text. Also, all the headings are identified as hypertext, but testers reported mixed results when clicking these; they did not appear to work consistently.

There are blank elements for "About," "Table of Contents" and the list of "ebookmarks." Although it is possible for users to navigate to these buttons, TalkBack remains silent, which means that the user does not have access to information related their functionality. Again, it is only through trial and error that a user can discover the use of these labels.

Conclusion

In this summary we highlighted the main barriers of the OverDrive platform for readers with print disabilities. For details and specific examples, please see the full report.

By amending the development process and interface of this app, readers with print disabilities will be able to fully experience what OverDrive has to offer them.