NATIONAL FEDERATION OF THE BLIND

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August 26, 2015

VIA EMAIL

Ursalina Ramirez
Chief of Staff
New York City Department of Education
52 Chambers Street
New York, NY 10007
URamirez@schools.nyc.gov

Re: Proposed Contract Between the New York City Department of Education and Amazon Digital Services, Inc.

Dear Ms. Ramirez:

Thank you for your letter of yesterday's date. You note that the Department of Education will retain the right to order books elsewhere, but it appears to us that teachers and school administrators wishing to buy books and take advantage of deep discounts would be inclined to buy Amazon's content through the DOE storefront. Regardless of the original source of the ebooks or econtent, if DOE distributes the book through Amazon's current distribution software, the student or teacher will receive content with the same accessibility shortcomings as Amazon's Kindle content.

Amazon's distribution mechanism converts all content to Amazon's proprietary Kindle format, including accessible ePub3 content provided by publishers or accessible instructional materials provided by a teacher. While Amazon's converter accepts ePub and other accessible content, it locks the distributed content into the Kindle format. Unlike many other vendors, Amazon's current distribution platform does not permit "side loading" that would enable non-proprietary formats to be presented in the reading system. As a result, otherwise accessible content, when channeled through Amazon's distribution system, will have the shortcomings described in the attached document, or worse.

The attached document shows the problems with two Kindle formats in two charts. The first chart addresses Amazon's Print Replica formatted ebooks, books that even when used by a blind student on the optimum device, the Kindle Fire, still have significant deficits compared to the reading experience for the sighted student. The second addresses the standard Kindle format when the blind student uses iOS hardware, the optimum device for this format, and again results in inferior access to information. To demonstrate that there are commercially available alternatives that deliver to the blind student a more

equivalent reading experience, the document shows that the features unavailable to blind students in the Kindle formats are available to all students in ePub3 books on the VitalSource platform. VitalSource is by no means the only choice.

With respect to best practices, we can be of greater assistance if we have a more in-depth meeting to explore what the DOE wants to offer all students. In broad terms, ePub3, a set of HTML standards, includes accessibility standards that represent all that technology can currently offer to students with print disabilities, such as the ability to read MathML, tables and a rich markup to allow quick navigability. There are a number of web-based readers that are accessible and can make available all of the content features present in ePub3. Some, like Kobo and the Adobe Digital Editions reader, rely on the open-source software of the Readium Foundation that fully supports ePub3. Others, like Apple, use their own distribution format, but they also support the reading of other formats such as ePub3. Apple has the additional advantage of offering an authoring tool targeted at education; iBook Author is designed to empower authors and faculty to create ePub3 content.

If you wish to learn further on this topic, I note that James English of the New York Public Library is on the Readium Board of Directors; thus, he may be able to acquaint you further with the pros and cons of various readers that use the Readium software to deliver ePub3 to the reader. I have never spoken with Mr. English, but have been advised that he is extremely knowledgeable. For more information about best practices around ePub3, you can obtain "Accessible EPUB 3, Best Practices for Creating Universally Usable Content," a free book by Matt Garrish from O'Reilly Publishers, http://shop.oreilly.com/product/0636920025283.do.

Obviously, the web platform for ordering or selecting books must also meet WCAG 2.0 AA standards.

Finally, you raise the question of distribution. Again, there are a number of accessible choices. For example, VitalSource, a member of Readium, has a distribution system that includes the ability to share notes or bookmarks, enabling the teacher to give assignments and raise questions or comments across the class. I would also note that VitalSource integrates with other portals, such as Blackboard.

By contrast, here is what happens with content loaded on to Whispercast for distribution. NFB tried loading an accessible ePub3 book on to a Whispercast account but was unsuccessful because ePub3 is not a format supported by Whispercast. The only way to get this accessible title to read would have been to convert it into Amazon's Kindle file format, which would have stripped it of all markup, as described in the table in the attached chart that addresses reflowable text. NFB also uploaded the attached chart as a fully accessible .docx format document to Whispercast. The result: a blind user could not tell there were tables, could not know what column and row was being read and, since the alt tags were gone, could not know whether the cell contained a check mark, an X, or a caution sign. Finally, NFB uploaded a .pdf file that it knew to be accessible (NFB's annual report). On an iOS device, Voiceover stated "This file format is not supported." On the Kindle Fire, nothing was vocalized at all – it simply could not be read.

We are not endorsing any given product. To the contrary, we continue to request a true dialogue where we can give you information about the accessibility of different features that you identify as pedagogically important. I am confident that when selecting Amazon for final consideration, you were unaware of the accessibility barriers present in Kindle content – barriers that the National Federation of the Blind knows all too well. I am equally confident that a meeting would allow us to help you identify the people, resources, and products that can help you get a solution that will serve all of your students optimally.

Sincerely,

Mark A. Riccobono, President
National Federation of the Blind

MAR/ms

Enclosure

cc: Vanessa Leung, Panel for Educational Policy Chair, VLeung@schools.nyc.gov

Victor Calise, Commissioner, New York City Mayor's Office for People with Disabilities, mopdcommissioner@cityhall.nyc.gov

Inaccessibility of Kindle eBooks

Compiled by the National Federation of the Blind, August 2015

Amazon currently offers ebooks and econtent in two formats: Print Replica and reflowable text. The following two charts identify accessibility barriers for academic reading.

Inaccessibility of Kindle Print Replica eBooks

Typically, Amazon's electronic textbooks are only available in Kindle Print Replica format and cannot be accessed as reflowable text. The most accessible experience available from Amazon for reading Print Replica books is with the Kindle Fire. Even so, a blind student who follows the instructions provided by the Fire will be unable to read a Kindle Print Replica book at all. A technologically sophisticated adult can force the reading experience, but it is a difficult, inconsistent, and buggy reading experience that would cause a blind student to read far less efficiently than other students.

The following chart assumes that a blind student has managed to get the Kindle Fire to read the Print Replica book. The chart describes those tasks that a sighted student will be able to perform that a blind student cannot. As a point of comparison, the chart also shows how the reading experience on VitalSource's desktop application allows both sighted and blind students to accomplish these same tasks.

Please Note: Traditionally, iOS is considered the most accessible platform for accessing Kindle books, but when a Print Replica book is loaded, a blind user will hear the message, "VoiceOver does not support this content," rendering iOS unusable for Print Replica textbooks.

Features	**Usable by Blind Students: Kindle Print Replica ebooks**	**Usable by Blind Students: VitalSource Desktop Platform**
Look up the meaning of words and terms	✗	✓
Read a text description of a picture or graphic	✗	✓

Highlight text	✗	✓
Make notes	✗	✓
Read by paragraph	✗[1]	✓
Read tables	✗	✓
Return to highlights and notes	⚠[2]	✓
Read text in Braille	⚠[3]	✓
Determine the spelling of a word or term	⚠[4]	✓

[1] Kindle Fire instructions for reading by paragraph result in a student reading by sentence fragment. No workaround strategy has been identified.

[2] Because blind users cannot highlight, the returning-to-highlights-and-notes feature could not be tested.

[3] Braille can only be used with difficulty. Word wrap is not supported. Navigation of text is difficult as text is interpreted as one block per page for purposes of Braille, so paragraph markers and other separations in the text are lost.

[4] As students will be required to start from the top of a page when searching for each word they are trying to spell and reading commands are inconsistent, it is technically possible but very labor and time intensive for a student to learn the spelling of a term.

Inaccessibility of Kindle eBooks with Reflowable Text

Amazon's Kindle ebooks with reflowable text (text that can be sized independently of layout constraints) are most accessible on an iOS device. Even then, a blind student will encounter many significant barriers to having a reading experience equivalent to his sighted counterparts. The chart below describes activities that cannot be successfully completed by a blind student with Kindle for iOS and compares these activities to the experience of reading a textbook in the desktop VitalSource application, which is one of the ebook platforms the National Federation of the Blind knows to be accessible.

Features	Usable by Blind Students: Kindle on iOS	Usable by Blind Students: VitalSource Desktop
Read tables	✗	✓
Skip to the previous or next block or paragraph of text	✗	✓
Skip to the previous or next hyperlink or heading	✗	✓
Read the "alt text" labels on photos, illustrations, or graphics, i.e., know what the photos, graphics, or illustrations are that appear in the book	✗	✓
Move reliably between footnotes / endnotes and where they are indicated in the text	✗	✓
Highlight text	⚠ [5]	✓
Make notes	⚠ [6]	✓

[5] Text cannot be selected with Braille. The word that is first highlighted when a student begins to select text is not the same word as that which she had intended to select.

[6] This would be available only when text has been successfully highlighted.

Braille support in text	⚠ [7]	✓

Please note: The preceding table focuses on the tools that are unavailable or impractical for a blind student to use with Kindle on iOS. Students are able to read basic text continuously, and by both character and word. They are also able to use bookmarks, search for terms, use the table of contents, and go directly to a specific location in the book. These features make the Kindle suitable for basic leisure reading, but without the features described in the preceding table, a blind student would be wholly unable to participate in the majority of classroom activities independently.

[7] Braille navigation is limited to the ability to move page by page, or the length of the Braille display, so a user cannot move to different paragraphs in the text easily. Paragraph breaks are not clearly displayed. The inability to move only within these smaller chunks of text hampers a blind student's ability to skim content quickly.