Title:

Doing our part to end the "book famine": UQ's Ebook Accessibility Project

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Abstract

The rapid adoption of ebooks by Australian academic libraries holds out a great promise for students and staff with a print disability: namely, the prospect of being able to access a large proportion of their library's book collection, in a format that is flexible and works with assistive technologies. But all ebooks are not equal; and this promise is frustrated when ebook platforms include built-in obstacles which may prevent a person with a print disability from successfully using the books. In 2015, the University of Queensland Library committed to a goal, as part of the University's Disability Action Plan 2016-2018 (University of Queensland, Equity and Diversity section, Human Resources Division, 2015), to seek in its purchasing "preferred suppliers and publishers who provide learning resources and publications in various accessible formats." To address this goal, in 2017 the Library undertook a project to explore the accessibility of a range of ebook platforms commonly encountered by students through UQ Library. Once the findings were completed, we shared the data with the publishers and aggregators whose platforms had been tested, and initiated conversations with them. Finally we devised a procedure, to be integrated with the ordering workflow, to embed

the consideration of accessibility into purchasing decisions regarding both individual ebooks and ebook packages.

Defining print disability

In this study, we explored how well a range of ebook platforms serve Library clients with a print disability. We used the wider term, "print disability", rather than visual impairment, to also include other conditions which may prevent a person from reading a standard print book. Here is a typical definition:

"..print disability may be defined as the inability to access information in a print format due to either a visual, perceptual, or physical disability. Examples may include blindness, dyslexia, learning disabilities, or the inability to hold a book, follow a line of print, or focus and concentrate." (Tank & Frederiksen, 2007)

The "book famine"

Despite the millions of books and ebooks held in university libraries, those with a print disability still find their access to books limited. Digital text is by nature more flexible than print on paper; and since most books start life as an electronic file, the potential for providing accessible texts is huge. But readers with a print disability are still excluded from a majority of the world's books, in what the World Blind Union (2016) has called a "book famine", estimating that in 2016 less than 10% of books in developed countries were available in formats which could be used by blind readers.

This situation is changing rapidly in academic libraries, with the adoption of ebooks; but unless the ebooks are accessible, users with print disabilities are still effectively locked out, and the enabling potential of ebooks remains unrealised. This must be challenged, and libraries, as customers, service-providers, academic enablers, have a role to play.

University digital environment

University students work increasingly in a digital environment, and universities are responsible for building both campuses and electronic spaces which are inclusive of students with disabilities. Universities have policies asserting their commitment to equity principles and to supporting students with a disability to fulfil their academic potential; for example, the University of Queensland's Disability Policy 1.70.08 states:
"The University supports the right of people with disabilities to work and study on an equitable basis with other members of the University community" (University of Queensland, 2018).
But as librarians we bring into that digital environment systems and content we have purchased or accessed through subscription, on external sites which may be accessible to varying degrees. In that case, how can we deliver on our commitment to provide "equitable" access to clients with disabilities? Ebooks are just one example of this problem.

What features contribute to ebook accessibility?

A more accessible ebook allows a user with a print disability to perform functions necessary to any reader: for example, to choose a chapter from the table of contents and proceed to read it, using assistive technology; to navigate the text in a logical way; to search for a keyword and move to the place in the text where it appears. In order to read the text effectively, the user with a print disability may also need the flexibility to change the colour of the display; to enlarge the text and have it "reflow" to stay on the screen; to be able to read the text aloud with screenreader software; to navigate using only the keyboard.

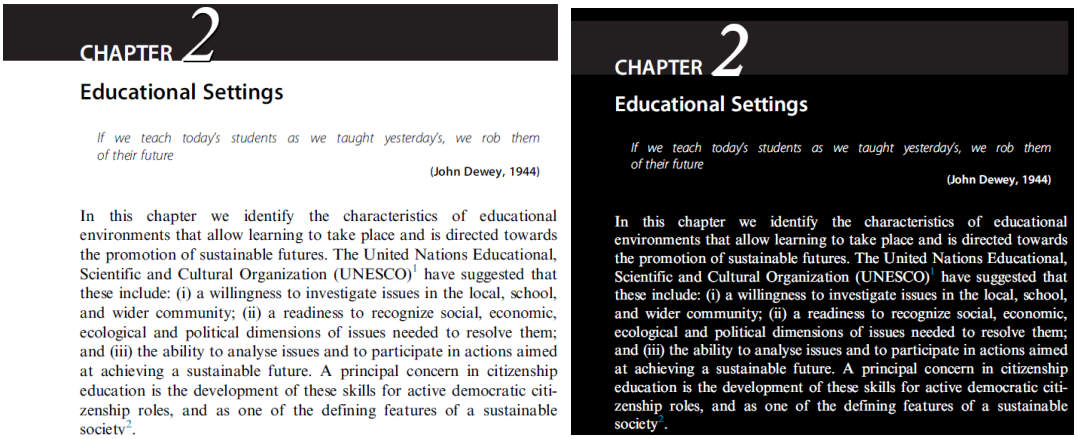
The ASPIRE project website sets out concisely the factors that determine how accessible the end user experience of an ebook will be:

> 1. *The nature of the file and the way it has been created.*
>
> This includes:
>
> - formats chosen (PDF, EPUB, HTML) as well as
> - the features enabled such as navigability, reading order etc.
>
> This element generally depends on the accessibility practices of publishers […]
>
> 2. *The nature of the platform*
>
> This includes:
>
> - accessible reading features (magnification/reflow, colour change),
> - compatibility with assistive technology etc.
>
> This element - the platform interface - is determined by the practices of the platform providers. […]

("The ASPIRE project: Accessibility statements promoting improved reading experience," 2018).

Features we should expect from ebooks – 2 examples

An ebook should allow colour change:



CHAPTER 2

Educational Settings

If we teach today's students as we taught yesterday's, we rob them of their future

(John Dewey, 1944)

In this chapter we identify the characteristics of educational environments that allow learning to take place and is directed towards the promotion of sustainable futures. The United Nations Educational, Scientific and Cultural Organization (UNESCO)[1] have suggested that these include: (i) a willingness to investigate issues in the local, school, and wider community; (ii) a readiness to recognize social, economic, ecological and political dimensions of issues needed to resolve them; and (iii) the ability to analyse issues and to participate in actions aimed at achieving a sustainable future. A principal concern in citizenship education is the development of these skills for active democratic citizenship roles, and as one of the defining features of a sustainable society[2].

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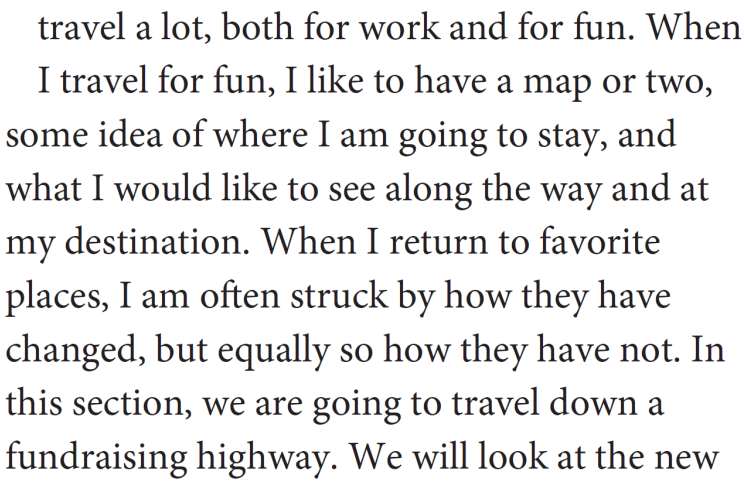
Mota, R., & Scott, D. (2014). *Education for Innovation and Independent Learning*.

Elsevier Science. Page 5. Viewed using the "colour change" options in Acrobat Pro.

An ebook should allow text to "reflow" and stay on the screen, when magnified:



travel a lot, both for work and for fun. When I travel for fun, I like to have a map or two, some idea of where I am going to stay, and what I would like to see along the way and at my destination. When I return to favorite places, I am often struck by how they have changed, but equally so how they have not. In this section, we are going to travel down a fundraising highway. We will look at the new

Klein, K. (2016). *Fundraising for social change* (7th ed.). Hoboken, New Jersey: Wiley.

Page 1. Viewed using the "reflow" option in Acrobat Pro.

Current practice in Australian university libraries

Library staff are generally aware of the issue, but have been unsure how to evaluate the accessibility of an ebook platform. An email survey was sent, as a preliminary to this project, to the Council of Australian University Librarians (CAUL) eResources email list in January, 2017. It asked:

- Has your library examined ebook platforms to identify the more accessible models?
- Does your library prefer the more accessible ebook platforms in purchasing?

It received 12 replies. Here are some representative examples:

[University A]: Our ebook platform preferences are informed by a number of critera, accessibility being one, but we don't currently have a policy that defines these, or a methodology by which we measure – we usually gauge these things by user feedback. Our equity students are very good about letting us know when they have issues with a platform.
[University B]: The Library does not examine ebook platforms to identify the most suitable for disabled patrons, and therefore does not prefer more accessible platforms. If we had to make a decision on two sites which were equal in every other way it probably would be a consideration.

[University C] Again, when making decisions, we don't look at disability access. But if by accessible, I am assuming you mean platforms with no DRM -- we prefer these wherever we can get access and have contracts filed with YBP, etc. For these reasons we have expanded the eBook frontfile strategy to include more publisher direct purchasing, increased EBA models with publishers, largely limited DDA to JSTOR and tried to manage aggregator access more actively.
[University D] Users generally prefer publisher interfaces because they are usually DRM free & they can get PDF files, these may be easier for students with visual disabilities to use, I don't know enough about the assistive technologies that apply.
[University E] We've made a conscious decision to limit the number of ebook platforms and have a preference for aggregated collections where these meet our needs, eg. Ebook Central. We do have a statement in our collection development guidelines regarding our preference for digital formats/ resources that include or support assistive technologies.

These replies reflect good intentions but a lack of either clear criteria or solid information as to which ebook models are the more accessible. One library believes it is supporting accessibility by preferring DRM-free models, while another believes it is doing so by preferring an aggregator with DRM. Another relies on students with disability to report "issues". Like the last example, many of these libraries may have statements in their

collection development policies to say that they prefer more accessible formats. Librarians have lacked clear information to base their decisions on, to give practical effect to these principled statements.

Methodology

In 2015, the University of Queensland Library committed to a goal, as part of the University's Disability Action Plan 2016-2018, to seek in its purchasing "preferred suppliers and publishers who provide learning resources and publications in various accessible formats." To address this goal, the Library undertook a project in 2017 to explore the accessibility of a range of ebook platforms commonly encountered by students through the University of Queensland Library.

Limitations of this study

- We recognize that our study can only be a snapshot at a particular time – April-May 2017 for the sighted testing, and November 2017 for the screenreader testing. Platforms continue to change, and some of those included in our study have changed markedly since the evaluation was done.
- The consistency of the data is also limited by having a variety of people do the sighted book testing. All the testers had sound library experience, but varying levels of I.T. expertise, and all were new to testing an ebook for accessibility.

The screenreader testing, on the other hand, was all carried out by the same two technicians.

- Only one ebook was tested from each platform. We recognize that ebook functionality can vary, particularly between books from different publishers on the same aggregator platform.

Environmental Scan

A site can be compliant with web accessibility guidelines and still not be effectively usable for a person with a print disability. So we looked for studies which explored whether an ebook would perform the sorts of tasks a university student needs it to do, and whether it was flexible enough to allow commonly-needed adjustments such as text enlargement, colour change, or reflow.

Two recent studies were especially relevant. One study was conducted by the San Jose State University (SJSU) Library in California, U.S.A., and the other by Jisc, in the U.K.

San Jose State University Library ebook Accessibility Project

In 2014, the San Jose State University Library (San Jose, California) conducted a thorough and consistent study of 16 academic ebook platforms, with the goal of "allowing students and librarians to make more informed decisions about which platforms are most accessible and user friendly to students, particularly those with disabilities" (San Jose State University, 2017). Their questions focussed on accessibility

features but also covered functionality valuable to all students, such as the ability to download, print, copy and paste. They checked whether the text would read aloud with screenreader software, but their study did not extend to exploring how well the ebooks performed with a screenreader.

Although they did not rank the platforms, they observed that single publisher platforms tended to offer more accessibility features than aggregator platforms (Mune & Agee, 2016, p. 181).

Their results are freely available in table form on the Library webpage (San Jose State University, 2014), and have been discussed in more depth in an article in the *Journal of Electronic Resources Librarianship*. (Mune & Agee, 2016)

Jisc Ebook Accessibility Audit

In 2016, Jisc conducted an ebook accessibility audit, which crowd-sourced its testing workforce from library and disability support staff at universities in the U.K., and in this way was able to test 275 ebooks from 44 academic ebook platforms (Ebook Audit 2016). Like the SJSU study, this was non-technical, "reader-focussed" testing, "a tool that helps determine whether the standards-compliance claimed translates to a decent user experience" (Ebook Audit 2016, 2016b). A strength of this study was the range of expertise which contributed to the devising of the audit questions, including publishers as well as staff from academic libraries and disability services in the project team. Online support material was created to assist the volunteer testers. For most of the testers, the audit was their first experience of evaluating an ebook platform, focussing on the features needed by a student with a print disability; in this way, the audit was a

valuable learning exercise, increasing staff understanding of the difficulties faced by students with a disability, and the platform features which can be enabling (Dobson & McNaught, 2017). Each platform was given a score and a platform report; the results were presented in a flexible spreadsheet, allowing the platforms to be re-ranked according to a selected feature, such as ability to enlarge the text. The results are publicly available on the eBook Accessibility Audit website, and the audit form remains available for future use. Publishers are invited to re-audit their products when platform improvements are made, and submit them for re-ranking.

Testing with screenreader software was outside the scope of the Jisc audit.

Choice of platforms for the University of Queensland's Ebook Accessibility Project

For UQ's project, we initially chose 16 platforms to test, in consultation with liaison librarians and with the Library's Coordinator, Resource Curation and Rights Management. We chose platforms

1) where UQ Library held a significant number of ebooks

2) to represent a variety of subject disciplines and

3) to include some Australian platforms.

The platforms were: ScienceDirect, Informit, CSIRO, Wiley, Project Muse, ProQuest Ebook Central, EBSCO, Springer, Cambridge Core, Oxford Scholarship Online, JStor, Knovel, CRCnetBASE, SAGE Knowledge, ACLS Humanities, and ClinicalKey.

We wrote to each of the ebook publishers/ aggregators to inform them about the project and to ask if they would share existing reports on the accessibility of their products,

including Voluntary Product Accessibility Templates (VPATs) where available. We sought out accessibility information in the "help" pages on the platforms, and on the publishers' webpages.

When contacted, Wiley and CRCnetBASE each replied that they were moving to a new platform soon, and preferred not to have their old platform tested. They were withdrawn from the study.

Testing Stage 1: by sighted users

The remaining 14 ebook platforms were tested in March-April 2017 using the questions from Jisc's Ebook Accessibility Audit, which Jisc had given us permission to use. Librarians volunteered to test one platform each, and in addition we had the help of two library technician students, who carried out some audits under supervision, as part of their fieldwork at UQ Library. An introductory session was held for the participants, and they also made use of the online support material which accompanies the Jisc audit form. For all the participants, it was their first experience of examining an ebook from an accessibility perspective.

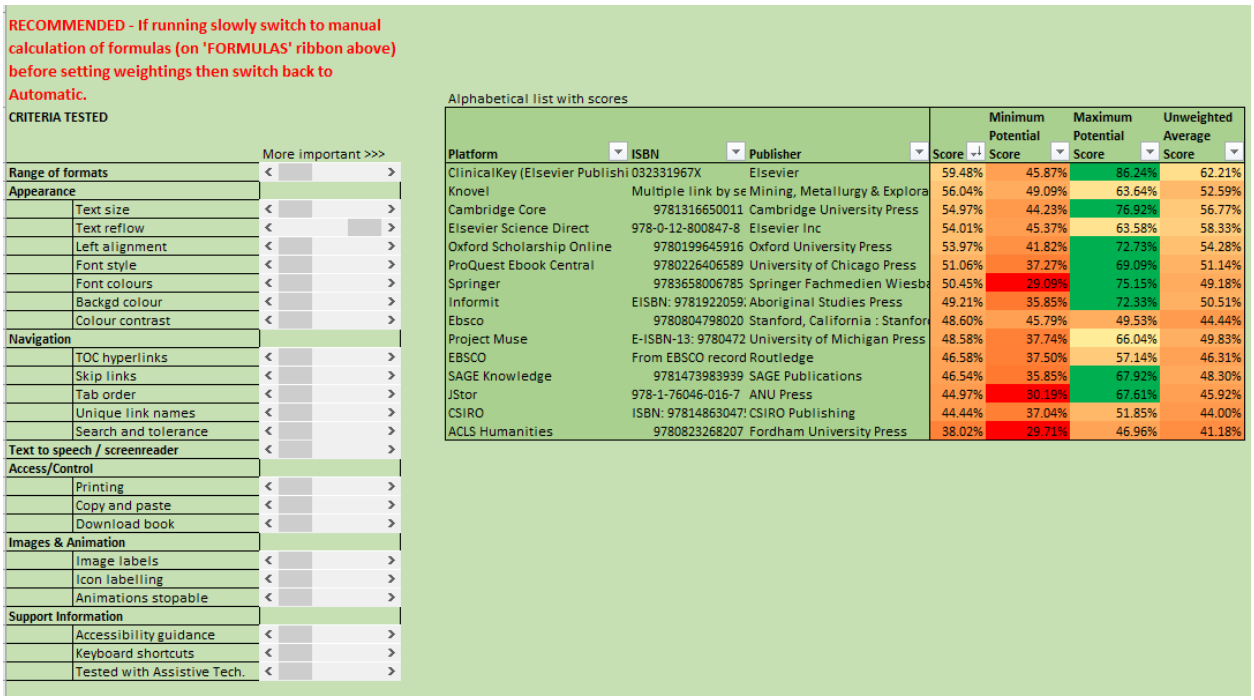
The completed audits were submitted to the Jisc site, and Jisc processed the data and produced platform reports and scoring for us.

The Jisc audit questions test an ebook for various types of flexibility and functionality needed by a user with a print disability, including:

- Changing the size and style of the font
- Changing the colour of the font and background

- Text reflow
- Labelling of images
- Reading the text aloud
- Provision of accessibility help pages

The findings, produced by Jisc in a dynamic spreadsheet, allow the platforms to be re-ranked according to the weight given to a chosen characteristic, for example, “text reflow”.



RECOMMENDED - If running slowly switch to manual calculation of formulas (on 'FORMULAS' ribbon above) before setting weightings then switch back to Automatic.

CRITERIA TESTED

		More important >>>
Range of formats		
Appearance		
	Text size	
	Text reflow	
	Left alignment	
	Font style	
	Font colours	
	Backgd colour	
	Colour contrast	
Navigation		
	TOC hyperlinks	
	Skip links	
	Tab order	
	Unique link names	
	Search and tolerance	
Text to speech / screenreader		
Access/Control		
	Printing	
	Copy and paste	
	Download book	
Images & Animation		
	Image labels	
	Icon labelling	
	Animations stopable	
Support Information		
	Accessibility guidance	
	Keyboard shortcuts	
	Tested with Assistive Tech.	

Alphabetical list with scores

Platform	ISBN	Publisher	Score	Minimum Potential Score	Maximum Potential Score	Unweighted Average Score
ClinicalKey (Elsevier Publishi	032331967X	Elsevier	59.48%	45.87%	86.24%	62.21%
Knovel	Multiple link by se	Mining, Metallurgy & Explora	56.04%	49.09%	63.64%	52.59%
Cambridge Core	9781316650011	Cambridge University Press	54.97%	44.23%	76.92%	56.77%
Elsevier Science Direct	978-0-12-800847-8	Elsevier Inc	54.01%	45.37%	63.58%	58.33%
Oxford Scholarship Online	9780199645916	Oxford University Press	53.97%	41.82%	72.73%	54.28%
ProQuest Ebook Central	9780226406589	University of Chicago Press	51.06%	37.27%	69.09%	51.14%
Springer	9783658006785	Springer Fachmedien Wiesba	50.45%	29.09%	75.15%	49.18%
Informit	EISBN: 9781922059	Aboriginal Studies Press	49.21%	35.85%	72.33%	50.51%
Ebsco	9780804798020	Stanford, California : Stanfor	48.60%	45.79%	49.53%	44.44%
Project Muse	E-ISBN-13: 9780472	University of Michigan Press	48.58%	37.74%	66.04%	49.83%
EBSCO	From EBSCO record	Routledge	46.58%	37.50%	57.14%	46.31%
SAGE Knowledge	9781473983939	SAGE Publications	46.54%	35.85%	67.92%	48.30%
JStor	978-1-76046-016-7	ANU Press	44.97%	30.19%	67.61%	45.92%
CSIRO	ISBN: 97814863047	CSIRO Publishing	44.44%	37.04%	51.85%	44.00%
ACLS Humanities	9780823268207	Fordham University Press	38.02%	29.71%	46.96%	41.18%

Screengrab of spreadsheet with platforms ranked according to whether “text reflow” is provided.

Findings – testing by sighted users

Two key determinants of accessibility: formats and DRM-status

Using the spreadsheet provided by Jisc, we were able to rank and re-rank the results according to one or more chosen features, such as ability to reflow the text. It became clear that, in general, the platforms which were most likely to perform well across various criteria were those which provided read-online text in HTML, and which were free of DRM.

Formats

Is the book provided in HTML/ EPUB in addition to PDF?

One of the main determinants of the accessibility of an ebook model is the format in which the ebook content is provided. The platforms found to meet more of the accessibility criteria in this study provided chapter-length HTML for reading online, and DRM-free readable PDFs for downloading. At the time of testing, all the tested platforms offering this model were publisher platforms. HTML is more flexible than PDF, will read more easily with a screenreader, can be enlarged, and will reflow. (Ebook Audit 2016, 2016a)

DRM

DRM – is the book controlled by Digital Rights Management?

DRM allows the reader to view or download the ebook in a controlled environment, often requiring Adobe Digital Editions software for downloads, with the ability to impose controls on, for example, the number of pages which can be printed or copied, and the

length of time before a downloaded copy expires. This controlled environment can limit the flexibility of the ebook and its ability to be read using assistive technologies.

This table groups the platforms in the study according to formats provided and DRM status.

Platform	Format – Read online	Format -- Download	DRM
Group 1	**More accessible platforms** (HTML read online; PDF download; No DRM)		
Cambridge Core	HTML, PDF chapters	PDF	No
Clinical Key	HTML, PDF chapters	PDF	No
Elsevier ScienceDirect	HTML, PDF chapters	PDF	No
Oxford Scholarship Online	HTML chapters	PDF	No
SAGE Knowledge	HTML, PDF chapters	PDF	No
Group 2	**Moderately accessible platforms** (PDF read online; PDF download; No DRM)		
Informit	PDF chapters or entire book	PDF	No
Jstor	PDF chapters	PDF	No
Project Muse	PDF chapters	PDF	No

Platform	Format – Read online	Format -- Download	DRM
Springer	PDF chapters or entire book	PDF, some titles in EPUB	No
Group 3	**Platform with special "accessibility mode"** (PDF or plain text read online; PDF download; with DRM)		
ProQuest Ebook Central Users can now turn the accessible interface on for themselves (from October 2018).	PDF page-by-page; A page-by-page text version is available through a link detectable by screenreaders, or by writing to ProQuest to seek individual access for a student with a disability; the "accessibility" interface has explicit navigation for screenreader users.	PDF, some titles in EPUB	Yes
Group 4	**Less accessible platforms** **More difficulties were encountered with these platforms, especially with a screenreader** (PDF read online; 2 with plain text read online; PDF download, 1 non-OCRed; 2 with DRM, 2 without DRM.)		
EBSCO	PDF page-by-page; A page-by-page text version is available to screenreader-users	PDF, some titles in EPUB	Yes

Platform	Format – Read online	Format -- Download	DRM
EBSCO has moved to a new platform in mid-2018, which provides chapters in HTML, and has retired the access key system.	through an “access key” system and key combinations specific to EBSCO; this system was not familiar to our screenreader testers		
ACLS Humanities ACLS has moved to a new platform in 2018	Image PDF (non-OCRed) page-by-page; text page-by-page; multiple difficulties with interface with a screenreader	PDF (non-OCRed) chapters	No
Knovel	PDF chapters; multiple difficulties with interface with a screenreader	PDF	No
CSIRO	PDF page-by-page;	PDF, EPUB	Yes

Platform	Format – Read online	Format -- Download	DRM
(CSIRO has moved to the ProQuest platform in 2018.)	multiple difficulties with interface with a screenreader		

Testing Stage 2: by blind users with screenreader software, NVDA and VoiceOver

For the second stage of testing, we compiled an additional set of questions, borrowing (with permission) from SJSU and Jisc, and seeking input from a student and a staff member who use screenreaders for their academic work at the University of Queensland. Two blind students were employed as research technicians to test the same 14 ebooks, using the NVDA (PC) and VoiceOver (Mac) screenreaders. A librarian worked alongside them to observe and to record answers and comments.

After the testing was finished, some examples of the obstacles encountered were demonstrated by the technicians and filmed, for sharing with the publishers/aggregators.

Platform functionality with screenreaders NVDA and VoiceOver

Screenreader software reads aloud the text on a screen, in a computer-generated voice. Screenreaders are chiefly used by people who are blind. For a product to read successfully with a screenreader, minimum requirements are that the text must be readable, and it must be possible to navigate using only the keyboard, not the mouse.

Findings – testing the same books with screenreader software:

Testing the ebooks using a screenreader identified obstacles we would not otherwise have been aware of. In some cases, a platform which delivered ebook content in otherwise suitable formats was marred by shortcomings in the platform when used with screenreaders, which had the effect of preventing a blind reader from successfully using the book.

Obstacles encountered when using a screenreader included:

- Links which were apparently unlabelled. The screenreader read them as "clickable" or "link" or "radio button", while the sighted observer could see that the buttons actually read (for example) "Download" or "Print". In one platform, the link for "Download book" was not detected by either screenreader, NVDA or VoiceOver.

- Inability to navigate from the Table of Contents into the frame where the book content was displayed, without using the mouse, requiring help from a sighted person. (Moller-Neilsen, Fitt, & Schindler, 2018)
  Video clip available at: https://doi.org/10.14264/uql.2018.267

- The appearance of an inaccessible box when downloading, asking the user to click to proceed, or to agree to terms and conditions by clicking; it was not possible to proceed past this box without the help of a sighted person to click on the mouse.

- Lack of logical navigation for a screenreader user; in read-online mode, in some platforms, after reading one page of the book, it was necessary to browse multiple headings to find the “next page” link.

- Ineffective search functionality; in some platforms, while the book could be searched using a screenreader, the resulting matches with snippets of text were displayed as .png (image) files, unreadable with a screenreader.

- Indicating that a plain text version is available to screenreader users, but requiring an “access key” and keyboard combinations specific to the platform, so that the standard navigation in the screenreader was not enough to enable the book to be read. (Decaux, Fitt, & Schindler, 2018)
  Video clip available at: https://doi.org/10.14264/uql.2018.269

- One platform provided its downloaded chapters in the form of .tif (image) files, unreadable by a screenreader.

(Schindler, Decaux, & Moller-Neilsen, 2018)

Comments on screenreader testing results

To find so many otherwise-hidden obstacles, on the sites of publishers and aggregators most of whom state their commitment to accessibility on their webpages, was illuminating.

If ebook providers were testing their products with assistive technologies, could they have left these obstacles unremedied?

It is not reasonable to expect libraries to carry out their own screenreader testing before buying an ebook package. But it is quite reasonable to expect ebook providers, who market their products to universities with a diverse student population and workforce, to test their own products with assistive technologies, as part of their product development. In the UQ study, two technicians with screenreader expertise were employed for a total of 50 hours, to test 14 platforms. A publisher with only one platform to test could learn a lot about it in a day.

Libraries testing ebook platforms – "The Big Ten"

We encountered one high-profile example of libraries carrying out accessibility testing. "The Big Ten Academic Alliance", a group of ten universities in the United States, has since 2015 been testing ebook platforms and databases which are being considered for purchase by members of the group. The "Big Ten" commissions independent accessibility testing, posts the reports on its website, and invites the

publishers/providers to respond. The Big Ten's action makes a clear statement of the value libraries place on accessibility, and asserts the responsibility of providers to play their part. At the time of writing (July 2018), there were reports on twenty platforms, on the Big Ten site (Big Ten Academic Alliance, 2018).

Publisher/aggregator accessibility webpages -- Jisc's ASPIRE Project 2018

If ebook publishers and aggregators provide practical, accurate information about the accessibility of their products on their webpages, including how they work best and what features are and aren't offered, this will help inform choices by libraries and readers with a print disability, and obviate the need for libraries to do their own testing.

Jisc's accessibility and inclusion blog compared the need for good publisher accessibility statements to food labelling:

"I can tell at a glance if a pie or pizza costing £1.99 will suit my dietary needs. I have no idea if my university's e-book platform or content (costing thousands of pounds) will meet my study needs" (Jisc accessibility and inclusion, 2018).

For the 2018 stage of its Ebook Accessibility Audit, Jisc asked its volunteer testers, in higher education libraries in the U.K., to evaluate not the platforms, this time, but the accessibility help information provided by a publisher or aggregator on its webpage. Jisc has again taken a collaborative approach, including publishers and aggregators, as well as higher education disability support and library staff, in its project team, and in developing the audit questions ("The ASPIRE project: Accessibility statements promoting improved reading experience," 2018).

The resulting focussing of attention on publisher/aggregator accessibility webpages, and examples of best practice, may result in improved information to guide library and student decision-making.

Workflow integration

Following the project, we needed a mechanism for integrating accessibility considerations with the purchasing workflow, without creating something too technical or too cumbersome.

Concise guidelines and a table grouping platforms by their levels of accessibility were placed on the intranet to help inform choices by librarians when ordering individual ebooks.

For new purchase proposals for packages of ebooks or other eresources, an accessibility “checklist” was added to the proposal form, embedding accessibility in the selection process.

When a new package is proposed for purchase, we now ask:

- What accessibility evaluations have been done for this product? (UQ, Jisc, Big Ten). What picture do they provide?
- What accessibility information is provided on the supplier’s webpage? How comprehensive is it?
- What formats are the ebooks/eresources provided in? In particular, are the books provided in HTML or EPUB, which are more flexible than PDF?

- Are downloads controlled by DRM? If so, is it necessary to read them through Adobe Digital Editions, or can they be read with other software as well?
- Has the product been tested with assistive technologies?
- If adequate information cannot be found, ask the vendor to answer the questions in the Aspire audit of publisher/aggregator accessibility statements, to meet our need for accessibility information about their product, before purchasing ("The ASPIRE project: Accessibility statements promoting improved reading experience," 2018).

We were then able to add the following statement to UQ Library's Collection Management Policy, in July 2018:

> The Library is committed to providing electronic resources, such as ebooks, in formats which are accessible to users with print disabilities. We gather information about the accessibility of new products, as part of the purchasing process, and give preference to more accessible platforms, except where there is no alternative or where a product would be fundamentally altered.
>
> (University of Queensland Library, 2017)

Further innovations from publishers and aggregators

Email exchanges and phone conversations with the ebook publishers and aggregators, as a follow-up to our study, revealed a range of ongoing initiatives they are taking to improve accessibility. Perhaps we are on the brink of real change in the provision of accessible ebooks.

For example,

- JSTOR performs automated tagging of its PDFs, and offers to do additional manual tagging if needed for a reader with a print disability (JSTOR, 2018).
- Elsevier ScienceDirect has revised its platform to reduce the number of links on Search Results pages, thereby streamlining the experience for a screenreader user. It has also provided a very informative accessibility webpage (Younger, 2018; Elsevier, 2018).
- EBSCO is encouraging its publishers to provide books in EPUB as well as PDF, and in the past year 87% of new titles added to EBSCO have had an EPUB version (T. Tillack, presentation at the University of Queensland Library, 3 July 2018).
- Project Muse, with a grant from the Andrew W. Mellon Foundation, has produced an excellent accessibility guide for publishers, which they are sharing freely (Project Muse, 2017).
- The Australian Inclusive Publishing Initiative, of which ALIA is a member, is working on a plain English guide to accessibility standards for publishers. One of its overall goals is ”making ‘inclusive by design’ a reality for Australian readers with a print disability” (Australian Inclusive Publishing Initiative, 2017).
- Increasing DRM-free offerings from publishers and aggregators, including DRM-free Evidence-Based Acquisition and Publisher Frontfile models

Conclusion

“Reading equality remains an unrealised dream that is technologically, commercially, economically and legally possible” (Harpur, 2017, p. 1). This investigation into the accessibility of ebook platforms found a wide variation in the usability of academic ebook platforms at the University of Queensland for students with a print disability. Yet encouraging moves from publishers and aggregators; initiatives from publishers’ associations; the leadership of Jisc; and increasing awareness in academic libraries regarding the issue of providing an inclusive digital environment, are cause for hope. It is not acceptable to continue to put up with obstacles to the full participation of readers with a print disability, by failing to provide accessible ebook formats. The technology is already capable of providing the richness of library collections, and the educational opportunities they bring, to all our users. As librarians, we need to be able to rely on publishers and aggregators to test their products with assistive technologies, to work to deliver real usability, and to provide clear information about their accessibility features. Similarly, libraries, like publishers, need to do more than affirm our support for accessibility in our collection policies. We need to inform ourselves, consult our users with a disability, use the available tools created by leaders in the profession, and advocate for, and prefer, product design that supports and contributes to an inclusive academic environment.

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Ebook accessibility checklist

When ebook packages are considered for purchase or renewal, use these questions to help assess the accessibility of the product for clients with a print disability.

Questions to ask

Is this the only platform the ebook content is available on?
If so, we may need to purchase it despite its possible shortcomings, and expect to make or acquire an accessible copy if requested by a student with a print disability.

Is there accessibility information on the product's own website, or on a "help" screen?
If so, how comprehensive is it?

What existing accessibility evaluations have been done for this ebook platform?

UQ Accessibility Project 2017

Jisc

Big Ten

Are the ebooks provided in more than one format?
HTML and EPUB are more flexible formats than PDF and are likely to work better with assistive technology. If there are PDFs, are they OCRed? (test by searching the PDF for a word).

Are the ebooks provided free of Digital Rights Management (DRM) software?
If the ebooks are subject to DRM, what are the restrictions? Do they need to be downloaded through Adobe Digital Editions or will they work with other reading tools as well (eg BlueFire Reader)?

If downloading the ebooks is controlled by DRM, is the read-online interface accessible to assistive technologies? And has it been tested with assistive technologies?

If comprehensive information still hasn't been found, refer the supplier to the ASPIRE audit criteria (2018) (Jisc's audit of accessibility information provided on publishers' websites) and ask them to provide the missing information, before purchasing. (Choose the ASPIRE questions for publishers or aggregators.)

This checklist was compiled by Pam Schindler and was an outcome of the University of Queensland Library's *Ebook Accessibility Project* (2017).